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# BETTER FRUIT

VOLUME IX

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## How to Save the Waste by Canning, Evaporating, Drying, Vinegar, Cider and By-Products



APPLES GROWN IN JOHN DAY VALLEY

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

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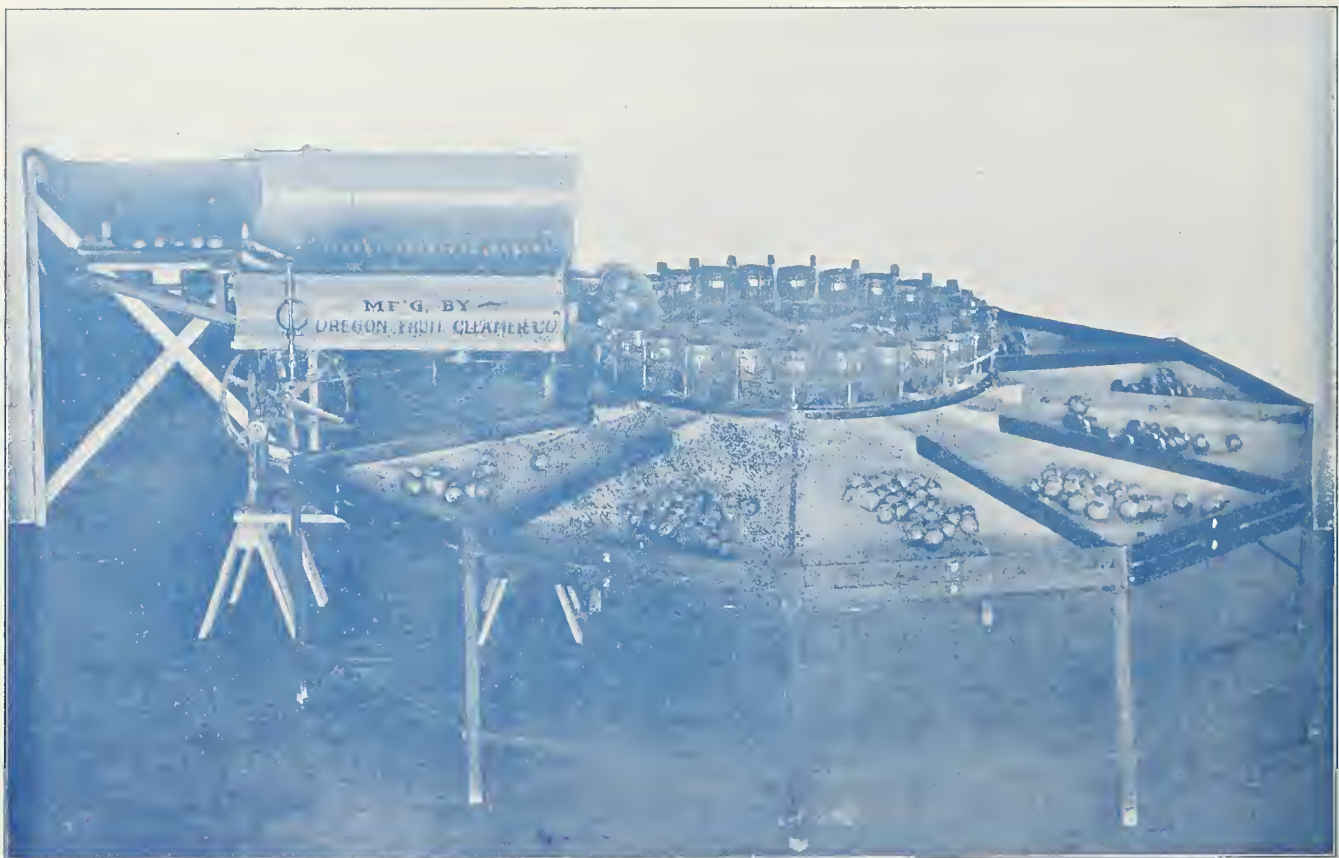
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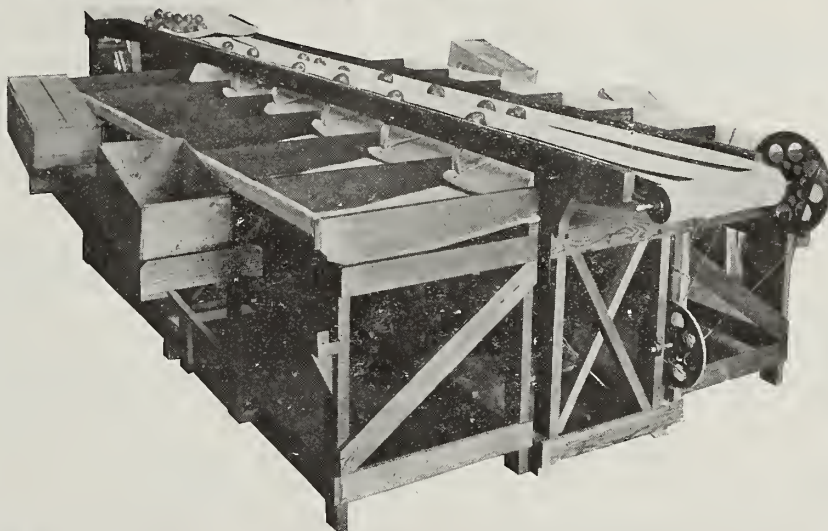
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# ? WHO ?

## *A Personal Inquiry of the Fruit Growers of the Northwest*

**Who ?** makes the price of your product? Do **you?** Other sorts of producers do, as a matter of course.

**Who ?** represents you in the markets? Is he actually **your** representative? Or does he merely operate with your product in conducting his own business? Does he handle products that compete with yours in the same markets? Does he have conflicting interests at the same or other seasons of the year? Other sorts of producers either **hire** their own representatives or have **exclusive** sales agency connections, as a matter of course.

**Who ?** finances the production of your product? A buyer who gives you an advance and mortgages your product to himself, thereby confining it to his own limited marketing field? Other sorts of producers get their loans from banks in a way that leaves their products **free** to enter all markets, as a matter of course.

**Who ?** is responsible to you for results and must account to you in detail? **Anyone at all?** Other sorts of producers have access to the books and can command itemized reports; they **control** the handling of their own products at all times, as a matter of course.

*8,100\* Affiliated Fruit Growers of the Northwest*

*are Producers on a Matter of Course Business Basis*

*Are You One of Them?*

## North Pacific Fruit Distributors

**A Co-operative Central Selling Agency for  
110 Local Fruit Growers' Organizations 110**

**Spokane, Washington**

\*Note—Membership of affiliated organizations has increased from 7000 to 8100 the past month

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On Goodyear Tires. All advances—due to doubled cost of rubber—were withdrawn on August 19th. This applies to dealers and consumers.

We have secured from abroad sufficient rubber at former prices to warrant this announcement. Goodyear prices are now everywhere the same as they were before the war.

## Sturdier Tires

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The tires which rule in Tiredom now are Goodyear Tires—by long odds.

After men have used four millions of them, they lead in prestige and in sales.

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Back of that super-service lies four exclusive features. They are these:

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**Our rubber rivets.** By a patent method, hundreds of these are formed in each tire to combat tread separation. They reduce this risk sixty per cent.

**All-Weather treads**—the matchless anti-skids. They are tough, double-thick and enduring. Resistless on wet roads with their deep, sharp grips; yet flat and smooth, so they run like a plain tread.

#### Upper Class Tires How to Get Them

These things make Goodyears the upper class tires. No other maker employs them.

And no other method combats one of these troubles in an equally efficient way.

These things mean safety, sturdiness and strength. They mean maximum mileage and minimum trouble.

When one tire gives them—and others don't—you should get the tire that does.

Any dealer will supply you if you say you want this tire. He will sell it to you at a price impossible were it not for our mammoth output.

It is up to you. Note again these extra features. Then ask some Goodyear user what it means to have such tires.

Find out why Goodyear leads.



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(1852)



# BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

## The Canner's Interest in the Fruit Industry

C. H. Bentley, Manager California Fruit Canners' Association, San Francisco, before California Fruit Growers' State Convention

THE relation of the canner to the fruitgrower may be likened in some respects to that of the mother-in-law—she may be cranky and fault-finding, but she is very handy when things go wrong; and so the canner, with all his faults, is helpful to the fruit industry, not only in emergencies but in the ordinary course of the growers' troublesome business. Time was, and that recently, when business was conducted on the principles of a horse trade,—each party to a transaction figuring that one or the other must get the worst of it and each taking good care that the other got it, but in these days, when efficiency in business has demonstrated the fallacy of such methods, canners and growers are recognizing that permanent, successful business can only be founded on the square deal. The grower may now talk with the canner without hiding his watch. He may now sign a contract selling his crop with a confident belief that the crop is sold even if the market goes down. The canner signs the contract with full confidence that the grower will hide his best fruit on the bottom of the box, and believes that if the market goes higher he will get the fruit he bought, and not the crop of all the grower's neighbors in addition. We have much in common interest and the State Board of Horticulture and the State University render a great service to us all in providing such an opportunity as has been given in these convention days.

The canner has been of practical service to the fruit industry in many ways that probably escape attention. He often experiments with new varieties on his own farms and orchards, demonstrating on a practical scale new and improved methods. He has led the way and assisted financially and otherwise in fighting pests that threaten important varieties of fruits and vegetables. He gives a profitable and convenient market of great importance to the growers of many varieties. By canning the surplus in a season of plenty he extends the market for the producer. He gives employment under healthful, pleasant, instructive and remunerative conditions to thousands of employes during the summer and vacation. He supplies a superior article of diet at low cost and great value throughout the year. He exploits new markets, advertises the state and opens up markets not only for the canned article but for the fresh and dried fruits. His market is largely in other states, so that outside money is brought

into the state to be spent largely for labor, for fruit and for other materials produced for the most part within the state. He often assists the responsible grower in a financial way through loans and advances, though in many cases growers have come to such prosperous conditions that they are often creditors rather than borrowers. These, then, are some of the points of contact showing the relation of the canner to the fruit industry. Assuming that you accept these as credentials, I

### Features of this Issue

THE CANNER'S INTEREST IN THE  
FRUIT INDUSTRY

UTILIZATION OF WASTE FRUITS IN  
VINEGAR MAKING

BY-PRODUCTS OF THE APPLE

SECRETS OF SUCCESS IN CANNING

DRIED FRUITS—BY-PRODUCTS OF  
THE NORTHWEST

DRYING APPLES AN ANCIENT  
CUSTOM

shall undertake to discuss some things which I believe to be of common interest.

I am instructed by your organization committee to present facts of practical use, telling the particular kinds and varieties of the various fruits which are most desirable for canning. In order that we may understand each other, let me explain some fundamental things relating to fruit canning. While there is a limited quantity of jams, jellies and preserves manufactured commercially within the state, by far the larger quantity of fruit is used for the ordinary canned fruit, that is, fruit that is filled into the can fresh before cooking. Sugar syrup is then put in merely for flavoring, the can is hermetically sealed and finally processed or sterilized by heat. Sugar is not essential to the keeping qualities. The endeavor is to keep the fruit in its natural appearance, flavor and condition. When properly cooked or sterilized canned foods will keep so long as the hermetic seal is unbroken. If rust forms on the tin it soon penetrates and destroys the seal, admitting the air with its microscopic germs of fermentation and decay. The preserves, jams and

jellies, stewed in kettles with a high percentage of sugar, are not so dependent upon hermetic closure, as the sugar acts as a preserving agent. For these so-called preserves, jams and jellies, California produces suitable berries, sour cherries, peaches, plums, quinces, currants, gooseberries, apples and figs, but of greater commercial importance are the fruits that are generally used for tinned or canned fruits,—apricots, peaches, pears, cherries and plums.

It may seem strange to some of you who have fresh apples all the year that there is a considerable business in California canned apples. These are chiefly put up in the large tins for hotels and pie bakers, peeled, cored and quartered, ready for use. They are more convenient and frequently cheaper than the fresh apples. A limited quantity is packed in smaller tins for table use in the tropics, where fresh apples quickly spoil. About 2,500 tons are canned annually in California, chiefly Newtown Pippins. The firm white apples are required. For the very best quality of table apples the average price is about one cent per pound. The undersized fruit is largely used for the pie grade. Wormy apples are useless on account of the additional waste and expense in coring and removing disfigurements. Thanks largely to the university, apple growers have been shown that the codling moth is not inevitable nor the plague of vengeance. The apples for canning purposes come largely from Sonoma, Santa Clara and Santa Cruz Counties. The growers have the opportunity of selling for fresh-fruit shipment, for canning or for drying. On suitable land and in certain locations growers have prospered, but with the enormous increase in the acreage of Oregon and Washington, California has serious competition and the relatively small demand for canned apples offers no great aid to the solution of this serious problem.

The canner is of more importance to the grower of apricots, for this variety, like that of pears and peaches, is exported all over the world to all countries which have not set hostile tariffs against us. In a normal season 20,000 tons of apricots are canned in California. Fruit of good size with a clear skin, golden color and firm texture is desired. As a rule apricots are packed unpeeled, as the skin gives a peculiar flavor and character which is desired. This makes the canner very particular about apricots being free from fungus or skin blemish. The Royal, Blenheim



and Hemskirk varieties, as grown in Santa Clara Valley, give best results to the canner. They have high color, flavor, firm texture and are usually clean and of good size. Moorpark has a flavor preferred by many and they grow to a larger size, but they ripen unevenly, one-half ripening before the other, and the upper portion about the stem is usually green and hard after the lower portion is full ripe. Most of the fruit is simply washed, halved and pitted. The fruit grown in the interior as well as the southern part of the state is not so desirable in color, flavor or texture, although there are exceptional locations. With apricots the growers have three opportunities for disposing of their product, as the canner must compete with the shipper and the dryer.

As with apricots and apples, so with most of the important canning varieties of cherries. The dealer and consumer demand a clear, transparent syrup. For this reason our Royal Ann is wanted for its size and firm texture. When it ripens in the sun and takes on its beautiful red color it is not so desirable for the canner as the waxy-white ones which grow in the shade. The high-colored ones turn a russet brown after processing and the uninformed buyer thinks the fruit is bruised. Cherries are stemmed, washed and canned whole without pitting. Skin blemishes, bird pecks and cracks are accordingly very conspicuous and undesirable. They grow to perfection in the north-central counties of the state, are bought by shippers and by packers in Maraschino, as well as by canners. The so-called soft white cherries are less desirable because they have not the firm texture, do not stand handling nor processing so well as the Royal Anns and are smaller in size, although some varieties like the Rockport and Buttners are quite superior to other soft white varieties. Black cherries are not popular in cans, as the color darkens the syrup and the canner must sell at a much lower price and then only in a limited way. About 1,800 tons of Royal Anns and whites are used annually for canning, and probably 500 tons of blacks.

The Muscat or raisin grape is canned to a limited extent. The fruit is merely stemmed and washed. About 1,000 tons are used annually.

Nectarines are used in a very limited way. Some varieties have a high color at the pit, which discolors the flesh of the fruit when processed. All varieties must be well ripened to secure the flavor, and yet in this condition the fruit is so soft and juicy as to make it unsuitable for canning purposes. A very limited quantity is used and the fresh and dried fruit markets are more desirable for this variety.

The canner wants a peach of golden color, of good and symmetrical size, without color at the pit and the pit small. For these reasons, of the freestone varieties he prefers the Muir and the Lovell. The latter usually commands a premium over other freestone varieties. The chief objection to it is

that it ripens in late August when the canner is overtaxed with many different varieties of fruit. If a peach similar to the Lovell could be developed to ripen in July or in the middle of September it would be in high favor. About 24,000 tons are canned annually. Other varieties which may do well for shipping purposes, like Alexanders, Hales Early, Mary's Choice and Picquets Late, are not desirable for canning. In spite of the increased trouble and expense of removing the pit, Yellow Clings are the most desired of all California canned fruits, and more of these are canned than any other variety. Fortunately different varieties have been propagated from the old original Lemon Cling, so that the canner gets an almost continuous season from late July until late September. Beginning with the Tuscans, Orange, McDevitt, Sellers, Phillips and ending with the Late Levi Clings. Owing to the congestion of peaches, pears, plums and berries in August the Early Tuscans and Late Phillips and Levi are preferred by canners. The Phillips is perhaps the most popular by reason of the firm texture, golden color, small pit and uniform symmetrical size. As with the freestone varieties, the clings are graded, washed, peeled, halved and pitted, although in the case of the clings a considerable demand has developed for slices. About 25,000 tons are used for canning. The White Heath Clings were formerly quite popular, but they apparently did not bear well enough to suit the growers and inferior varieties of white clings like the George's Late were planted, which were not at all satisfactory to consumers. They were tough, flavorless and red at the pit. With a good white cling like the McDevitt, particularly one ripening in September, this trade can be gradually recovered, and there is a need for this fruit. Canners will pay a premium over the price of yellow clings. About 900 tons are used for canning.

Bartlett pears are in good demand and canners use ordinarily about 20,000 tons per annum. Canners usually buy on specifications requiring the fruit to be free from scab and worms, to be of symmetrical shape and not less than two and a quarter inches in diameter. In preparation the fruit is peeled, halved and cored. The pear is a very satisfactory fruit to handle because the fruit is picked before ripening. It is shipped when firm and is accordingly delivered to the cannery free from bruises such as often come to other varieties. In the cannery the fruit is graded over and worked up as it ripens. While there has been serious difficulty with the pear blight, this variety seems to promise the grower the best results for years to come, assuming he has suitable land. He has a good market for shipping fresh, as the pear arrives in good condition, probably the best "shipper" of all California fruits. He has a ready buyer in the canner and a good market for the dried article if well handled. The tree is thrifty and hardy. Scab, scale and worms can be

prevented with reasonable care, and if the blight has no terrors the grower located on suitable soil seems in best position for years to come.

Egg plums, Green Gages, Golden Drop plums and similar varieties are used to a limited extent for canning. Buyers object to the colored varieties as they discolor the syrup. The fruit is merely stemmed, graded and washed and packed whole without peeling or pitting. About 2,500 tons are used for canning.

The varieties mentioned constitute those of greater importance to the canner, although the small fruits and berries are used by him as well as by the maker of jams, jellies and preserves. It should be remembered that while there may be a shortage on some of these fruits of minor importance it might not require much to create a surplus, and a grower should consult the manufacturer before planting any of these varieties on a large scale if he depends upon the canner for a market. California enjoys a fine position with Royal Ann cherries, Bartlett pears, apricots, yellow cling and white cling peaches. There is a strong export demand and there are none better, if so good, but conditions are different with our berries and small fruits. We have to admit it right here among ourselves that they are no better than those grown elsewhere, and we are accordingly dependent upon local trade.

Blackberries have been produced in large quantities chiefly in Sonoma County and are used extensively by canners. The Mammoth and the Lawton varieties are most common. About 2,000 tons are used by canners and makers of preserves. Far better results are secured from loganberries, as they are growing in favor, bring better prices in the fresh-fruit market, from the canner and from the buyer of dried fruit. Canners use about 750 tons. The Phenomenal variety seems to be preferred. In the dried form, loganberries are likely to supplant the Eastern dried raspberry in many markets.

From the point of view of the canner and maker of high-class preserves, California needs strawberries and raspberries of firmer texture and higher color. The varieties commonly grown are comparatively soft and juicy, suitable for jams and jellies but not for preserves. Such are the Dollar and Jessie varieties of the Florin district—the Banner and Malinda berries of the Watsonville district. The Longworth of the Alviso and Santa Clara districts has become too small to give much satisfaction to the canner or consumer. The Clark, Wilson and similar varieties grown in Oregon are preferred. They are apparently more hardy, more thrifty, better for shipping and for the table as well as for canning. About 800 tons are used by canners and preserves, but a much larger quantity could be used of better varieties.

Similarly with raspberries, canners find better results from Oregon fruit because it is firmer and higher in color. The fresh market seems to yield a very



profitable figure for all the raspberries grown, and for that reason there is little inducement for the grower to experiment with other varieties. The Cuthbert and Antwerp varieties are commonly grown; the former is preferred. Growers probably receive ten cents per pound or better from their shipments to the market. Cannery use about 100 tons, but more would be used if prices were nearer to those acceptable to growers in Oregon and Washington.

Gooseberries are used in a limited way for jams and jellies. If the large English gooseberry, as grown in Oregon, were produced here cannery would be interested and could afford to pay a higher price. Formerly there was a larger demand for the canned gooseberry and canned currant, but there was considerable spoilage, due to the fact that growers were using dry sulphur to prevent mildew and using it after the fruit had formed. This sulphur attacks the steel of the tin plate and soon destroys the hermetic seal, creating a swell. Because of the high price currants are used commercially for jelly, but to no great extent for canning or for jams.

Calimyrna and White Endish figs are used to some extent, and if handled carefully the small size would bring from four to five cents per pound from the canner and preserve manufacturer. It seems difficult to have them packed and delivered in proper condition. If they are too green they are of little use, and if at all overripe they cannot be used for a high-class preserve or canned article, but merely for a cheaper grade of jam. Texas seems to be able to grow a small white fig of good quality and this is canned to a considerable extent. There would seem to be an opportunity for improvement here.

Damson plums are needed for preserves, jams and jellies. They bring a premium over the ordinary varieties like Gages and Egg plums. There are very few grown at the present time. Concord grapes are also needed for jams and jellies. The want is partly filled by the Isabella variety. Jam makers can afford to pay a premium for the Concord above the ordinary varieties obtainable. Quinces, which were for years a drug on the fall fruit market, are now in better demand. Crabapples are in short supply commanding a price of 4½ to 5 cents per pound. Sour cherries are also used in a limited way, but there is small encouragement for the grower to plant them, as he can get better prices for the table and shipping varieties. The canner is limited in his price by Eastern competition.

This is primarily a gathering of fruit-growers and many would be uninterested in any discussion of vegetables used in canning, but it is not too much to say that if a variety of tender sugar corn free from worms could be grown it would lead to a tremendous growth in the canning industry, of importance to land owners, farmers, cannery, dealers and consumers. Various experiments have been made, but the waste

and expense arising from the worm makes the canning unprofitable. There is need of a smooth, firm, red, hardy, thrifty tomato. On account of the irregular shape of the variety now largely grown there is great waste in peeling.

There are some questions of vital interest to cannery and growers alike which I present from the cannery's point of view for your consideration. First of all the reputation of California fruit in Eastern markets. Most people there say, "Oh, yes, your California fruit is large and showy, but it has not the flavor of our Eastern fruit." If you pin them down you find very often that they have been tempted by some showy peaches which had been picked green, before they were fit to eat, and rushed onto the Eastern market. The consumer does not stop to think that this peach had to travel three thousand miles or more during a period of a week or ten days. He only knows that it has not the flavor like the Eastern or Southern peach which may have been picked only the day before he ate it, and so this prejudice arises against all California fruit, whether fresh or canned or dried. I sometimes wonder if the shippers of fresh peaches to the Eastern markets really get satisfactory returns and whether they could not be led to see that they could make more money out of pears or plums or other fruits than from shipping varieties of peaches. Under like conditions of harvesting and consumption, I believe we have as fine flavored peaches, pears and plums, yes, and apples too, as are grown anywhere, but you can't make the average Eastern buyer believe it.

Another difficulty with which the canner has to contend and which limits the output is the stupid prejudice which associates ptomaine poisoning with canned foods. Whenever a person has a cramp or a mysterious pain in the stomach the average ill-informed person begins to inquire if any canned foods have been eaten and if at any time within two weeks preceding the person may by any chance have had canned food, this luckless article is made the scapegoat for obvious indiscretions of the diet for chronic ailments and disorders. Newspaper reporters hail the news with delight, the headliner does the rest. The same verdict of the intelligent doctor giving the actual cause has no news value and no publicity. The facts are that very little is known of ptomaines by the most skilled physicians, but they do know that they are peculiar to animal products and are practically never found in fruits or vegetables. It is but common obvious sense to say that canned foods are a thousand times safer and freer from contamination and infection than the same foods handled fresh from the ordinary market, and for the simple reason that in processing or manufacture the canned goods are necessarily sterilized and hermetically sealed.

The extraordinary health standard maintained by our troops in the Philippines was made possible by the use of

canned foods instead of the fresh fruits and vegetables of the tropics. So says Brigadier-General Sharpe, the head of the Commissary Department of the United States Army. Similar conditions have prevailed with the construction of the Panama Canal. One of the eminent physicians associated with John Hopkins University is quoted as saying that in case of any widespread epidemic in a city he would recommend the exclusive use of canned foods as a matter of safety, and the amazing fact is that the concern in which I am interested has distributed over one billion packages of California fruit and vegetable products and there has never been one single authenticated case of illness or distress arising from the eating of these products. This is important for you, because if it were not for the unreasoning, ignorant prejudice of the average consumer the output of the cannery of California would be doubled, and this would be to the lasting advantage of the grower.

Another and very delicate question I wish to present is the matter of foreign markets. Growers of prunes, apricots, peaches and pears have long since appreciated the need of developing foreign markets, and yet we find in many countries there is a hostile import duty or tariff set against these products in the dried and canned form. We ship approximately 24,000,000 cans of apricots, peaches and pears to England in a normal year. Germany should be almost as good a market, but we ship to Germany only about two per cent of the quantity shipped to England, largely because of the high prohibitive tariff Germany has set against us. Similar conditions exist in Canada, France, Belgium, Holland, Scandinavia, Italy, Austria, Russia, Japan, New Zealand and Australia. It must be admitted that in many of these countries the present tariffs were levied against us in retaliation for our tariffs upon their products, and the pity of it is that in our recent tariff law there was no adequate provision for maximum and minimum rates so as to give our Department of State the opportunity for negotiating reciprocal reductions of tariffs against our products in exchange for the reductions we have given them. The new tariff law, with its many reductions, has been in effect eight months; there have been no reciprocal reductions in any foreign country so far as California fruits are concerned, but there have been some advances in the duty on our products. It would seem fitting for those of us who produce articles for export—growers of oranges, lemons, prunes, raisins, apricots, peaches and pears—to ask our representatives in Congress why we cannot secure some reciprocal advantage in foreign markets for the reduction in the tariffs in this country.

Finally, let me urge from the cannery's point of view the serious menace to the entire fruit industry involved in the proposed eight-hour law. During the last two sessions of the Legislature cannery have taken an active part in



seeing that the law as now applied to women does not affect labor engaged in the handling of fruit and perishable products. There has been no difficulty in demonstrating to the legislative committee the justice and the necessity for such exception, and there is certainly no need for making any argument with people like yourselves who are so familiar with the necessities of our industry, particularly as you have listened to such an able and earnest and practical discussion of the question by Mr. Hecke, but it occurs to me to remind growers of canning varieties of fruits and vegetables that the canner cannot contract for his fruit as he has done in the past, taking it as it matures, some days little and the next day much. He will not continue doing this under any such law. He will feel obliged to tell the grower that he must deliver only a limited number of tons daily, and in the event of any rush in the ripening of his fruit the grower would be under the necessity of finding a market for some of his crop elsewhere.

During the rush of July and August the canner is usually unable to get help enough, and in September, after the opening of the schools, he still has trouble, consequently it is entirely impossible to run night shifts as suggested by the proponents of the law, and even if it were night shifts would be more injurious to the well-being of young

women and men than occasional overtime. Thousands of the employees in canneries are young men and women who are working during the vacation months to help themselves through school and college. Many a thrifty housewife is eager to get a little pin money during the limited fruit season, just to help along. They are glad of the occasional overtime. When the eight-hour law for women was under discussion in the Legislature thousands of the women employees petitioned the Legislature, begging them not to deprive them of this work, urging the satisfactory conditions of the employment. I need not plead with you except to stimulate your interest and urge you to take an active part in seeing that people are fully informed, that a public sentiment be aroused against such legislation.

I thank you for your kind attention and I am sure that I give the unanimous opinion of the canners of California when I express thanks to Dr. Cooke, to the State and County Boards of Horticulture, to the College of Agriculture of the University of California, who have joined to make this splendid gathering an unprecedented success. I would express, as well, our pride and gratitude for these great agencies of the state which are doing so much for the upbuilding of our industry.

## Representative Among Commercial Attaches

By H. B. Miller, Director School of Commerce, University of Oregon

**W**E have in the three North Pacific States about 1,000,000,000,000 feet, board measure, of standing timber. California has above 300,000,000,000 feet. Competitive with this in the export trade of the Pacific is British Columbia, with about 330,000,000,000 feet. Whereas the cut of the Pacific States is now about 8,000,000,000 feet a year, only a limited portion of which goes into the export trade, we of this region could cut 4,000,000,000 to 5,000,000,000 feet more a year for the general outside trade. Oregon alone could increase her cut by 2,000,000,000 feet.

The National Forests of the Pacific Northwest, owned by the federal government, have a stand of 263,790,631,000 feet of timber, of which Oregon has 119,910,531,000. If a valuation of but \$1 a thousand is given the total, the federal property in our forests aggregates \$263,790,631. The value of this stumpage will go higher as soon as a strong market for Northwestern wood is created, and \$2.50 a thousand, or an aggregate for the Northwest of \$650,000,000 is regarded a fair possibility of the future for the government's local forest asset. By helping create a lumber market abroad, the federal government will expedite this realization. The Northwestern lumber market is today depressed. Tariff reductions and eliminations, and assessing a toll on lumber ships from this Coast to pass through Panama Canal, will make for further injury to the business, unless extraor-

dinary aids are given to create a market. Not only is the Northwest affected by this state of affairs, but the entire nation, as prosperity here in lumber manufacture means general benefit to the country.

Already the fruit industry of the Northwest has overtaken markets. The real, fundamental needs confronting the industry here today are cheap transportation and broader, more stable markets. This year the apple crop will run in Oregon, Idaho and Washington from 15,000 to 20,000 carloads, and by 1920, if the industry is properly protected, the yield should aggregate from 50,000 to 80,000 carloads. The berry and general fruit by-products yield is growing much faster than the market. There is practically no limit to these productions, if a market may be found. All the fruit interests are most keen in the demand for market helps, and it is but fair for the federal government to do something in helping to devise ways and means to solve the problem.

The Pacific Northwest now exports in the form of wheat and flour about 40,000,000 bushels of wheat. With the rapid strides being made in Idaho and Western Montana, and the enormous possibilities of cereal production in Eastern Oregon, it is clear that the exports in this line should increase. While the present exports of flour run about 3,000,000 barrels a year, they may be made much greater, and it is to find a market for this flour that the local

cereal trade asks the federal government's co-operation.

While this year the purchases of livestock at the main center of Portland aggregated only about \$17,000,000, it is conceded that the Northwest may easily maintain a livestock industry that will offer annually meat products worth \$75,000,000. The outside market for these products will be the main element helping to build up the industry to the figure named. The Northwest is peculiarly interested in having foreign work done that will pave the way for such a trade.

Water power in the Columbia basin is stated by competent engineers to be a minimum of commercially available horsepower in the streams of 12,775,000, and the maximum is near 20,000,000. Out of this total, only about 300,000 horsepower has been harnessed. This slow development is due to the fact that the demand for power has not been sufficiently strong. The Northwest, and especially that portion in the Columbia basin, is peculiarly interested in all studies that might point the way to use and realization of this energy. The manufacture of nitrates, reduction of pig iron, manufacture of steel, the fertilizer industry outside the nitrate line, manufacture of aluminum, and all other great industries requiring enormous, cheap power, are of the utmost interest to the people of the Northwest, and they would appreciate being shown how they may attract the same. In this work, the federal government could render a powerful aid if it would have informed men abroad.

In the Northwest particularly, and with almost equal force all over the Pacific Coast, there are millions of acres of tillable land in idleness. It is the supreme aspiration of all these Pacific communities to get these lands properly settled and developed. While this work is not directly commercial, it is of the most intimate relationship. All studies in how thrifty, competent people may be attracted here, and all plans that may acquaint the world with the opportunities found here, will prove of the most far-reaching ultimate commercial importance to the Coast.

Because of all these conditions, the Northwest should have a representative among the list of commercial attaches authorized by recent act of Congress. Secretary of Commerce Redfield has power of appointing these officials, and the Northwest should convey to him, through Senator Chamberlain, a sense of the needs here. A man who has a thorough grasp of all local commercial and industrial conditions would be the ideal man, and would prove of the utmost help to the whole region in establishing and extending its much-needed markets.

Mr. N. J. Gibson, who is well known throughout the Northwest, has been visiting Wenatchee Valley, so we learn through one of our exchanges, which also states that the Gibson Fruit Company will act as Eastern agent for the Wenatchee Fruit Growers' Association.



# Utilization of Waste Fruits for the Making of Vinegar

By B. F. Butler, Chief Chemist Golden Gate Compressed Yeast Co. and Potrero Vinegar Works, San Francisco

VINEGAR, according to the latest technical definition, is a dilute solution of impure acetic acid, prepared by the acetous fermentation of alcohol or of substances which yield alcohol when suitably decomposed. This is technical enough explanation of what vinegar is, but what we are interested in are a few of the more practical factors concerned with its making. These points will be dealt with in plain terms, leaving the technical for those dealing with the subject from a purely technical standpoint.

Speaking simply, vinegar is dependent upon one main thing: That there be sugar present in the liquid desired to be converted to vinegar. Then in the making, two chief actions must ensue. First, the change of the sugar present into alcohol; second, the conversion of the alcohol into acetic acid. How these changes are brought about will be explained later in dealing with methods of manufacture. The color, and to a considerable extent also the odor and taste, of vinegar are influenced by the materials from which it is prepared. The chief sources are from fruits and grain. A small amount is made from the waste molasses of beet-sugar factories and from starch sugar or glucose, but the quantity is limited and the quality not inviting.

Of fruits, only a few carry sufficient sugar on the average to produce enough alcohol to convert to acetic acid of strength conforming to National or State Pure Food Law standards. Apples, grapes and limited quantities of pears and peaches are the chief sources of fruit vinegar. Late experiments of Professors Bioletti and Cruess at our State Agricultural Experiment Station demonstrate the possibility of oranges as a source of vinegar, but there are obstacles to be overcome before this source is established. Pineapples are another possible source of vinegar, and a very exceptional product can be made from their juice. Some pineapple vinegar has been put on the California market, but sales have never been pushed, with the result that it is a little known commodity. Let us return to present available fruit vinegars and deal with their preparation. We know them as cider vinegar and wine vinegar.

Cider vinegar constitutes about 15 per cent of the average total annual output of vinegar in the United States. Of the total amount of cider vinegar sold, in the neighborhood of 90 per cent of it is made in factories by the quick process, which I will explain later. Before the advent of the quick process the source of supply was mostly farmers who, because of the low price of apples at apple harvest, pressed quite a bulk of their crop into cider and allowed the cider to take its natural, slow course of "turning to vinegar." Only in isolated towns do we today find cider vinegar for sale which has been

made on the ranch or farm. Most every reader of this article is quite familiar with the general ranch method of making cider and its subsequent slow conversion into vinegar. The same general methods prevail in all sections of the country. In making cider vinegar on the ranch, the alcoholic fermentation of the cider is carried on by the native yeasts on the fruit and from the air. In the factory the cider is generally fermented by commercial yeasts to insure a more rapid, stronger and more certain alcoholic fermentation. Cider vinegar made in factories embodies still further different factors than the product made on the ranch. The apples used are the culls; those which, because of rot, worms, small and other defects, are unmarketable as apples, for pie fruit or other products. These culls and some fruit peel and cores from tributary canneries are known as vinegar stock. If the reader could see the condition of this vinegar stock going by carloads into some of the large cider vinegar plants at apple harvest time, the warm season of the year—this rotten, fly-blown, sour, foul-smelling conglomeration of material—to be made into a condiment for your consumption and that of your families, you would invoke your right of the initiative to legislate against its manufacture into and sale as vinegar. The product, cider vinegar, is a full, forceful and the best exemplification of the subject of this article, "The Utilization of Waste Fruits for Vinegar Making." This assertion is clearly demonstrated by the following facts and figures: One hundred pounds of apples yield on the average seven gallons of cider. Taking canning apples at \$1.25 per hundred pounds, the cost of raw material for one gallon of cider vinegar would be eighteen cents; to which must be added the cost of manufacture and the cost of selling. With cider vinegar selling wholesale at 12 cents per gallon without the container, or 6 cents below the cost of sound apples to make that gallon, from a commercial standpoint it is quite apparent it cannot be made from such fruit, but is made from the previously mentioned vinegar stock, costing a mere fraction of the price of sound apples. Eliminating the small per cent of cider vinegar made on the ranch and for sale, I feel perfectly safe in stating that 90 per cent of the cider vinegar on the market is a product in direct violation of the purpose of the National Pure Food Law.

Wine vinegar is made from the juice of grapes. When faulty fermentation gains the upper hand in wine making, the juice is converted to vinegar to save it from total loss. Oftentimes the acetic ferment (acetic acid bacteria) gains sway and by natural slow process the juice is converted to vinegar in a comparatively short time. It is, however, a rather uncertain thing to put too much reliance in nature's slow

process because of the presence in all grape must of various bacteria which can cause a disturbance in the acetification by the vinegar bacteria. For this reason the larger per cent of grape must which has failed to produce a passable wine is promptly forwarded to plants where it can be converted into vinegar by the quick process. Very few, if any, grapes are pressed with the purpose of making the juice into vinegar. Wine vinegar, as expressed above, is really the result of saving from total loss wines which have gone "bad." This loss—the difference in price between wine and wine vinegar—to the vineyardist would be practically eliminated if the use of cultivated—pure cultured—yeasts were adopted. Their use in proper pitching quantities would insure a cleaner, healthier fermentation of the grape must, with a resultant better flavored, higher quality wine, commanding a better market price.

Grain vinegar constitutes 80 per cent of the average total annual output of vinegar in the United States. It is no more than just to consume a little more time in a short description of its production. Grain vinegar is divided into two distinct classes, viz., malt vinegar and distilled vinegar. Malt vinegar constitutes a very small proportion of the two and is for sale almost exclusively in small, fancy containers at fancy prices for so-called fancy trade. The manufacture of the two vinegars is identical up to the end of the alcoholic fermentation. In the case of malt vinegar the fermented liquor, after filtering, is mixed with a proportion of finished vinegar and run over the generators for conversion to vinegar. In the case of distilled vinegar, the fermented liquor is put through a still and the alcohol distilled off and collected in dilute form called "low wines." These low wines are a clean, pure, dilute alcoholic liquor carrying 10 to 15 per cent alcohol by volume, or 20 to 30 proof; besides they carry the volatile esters or bouquet from a pure alcoholic fermentation of the extract of clean, sound, ripe grain. This process is under United States government inspection.

The materials from which grain vinegar is made are barley-malt, rye and corn. Barley-malt is the chief component. Some factories use no corn, but the majority use rye. For most factories the grain is bought entirely on analysis, which comprise chemical determinations and physical examinations by men trained to the line of requirements the grain must meet. Only the choicest sound, ripe grain is bought, in the majority of cases it being necessary to pay good premiums over the market price. These premiums are willingly paid in order to procure the very best of raw materials.

The grain before use is thoroughly cleaned by passing through grain-cleaning machines which separate from it



any foreign grain, seeds, dirt, sand, chaff, straw, cockle, smut and even fine dust. Immediately before use it is washed with clean cold water to further fortify the dry-cleaning process. The barley must be malted before use, which involves skill and knowledge on the part of the operators as well as expensive malting equipment. Great volumes of air are necessary for the respiration of the barley during its malting or growing period, and every cubic inch of this air is thoroughly filtered, washed and purified before entering the malting chambers. In some factories the malt at the end of the malting period is dried before use. In others it is ground without drying and is specified as green malt. The malt is ground into a vat, termed the mash tank, containing water of proper temperature. If corn is used it is previously cooked under pressure, which insures absolute purity. Where rye is used it is generally previously treated. Either or both, as the case may be, of these prepared grains are put into the mash tank about the time the malt is ground. The mixture is known as the mash. This mash tank is fitted with a mechanical stirrer or rakes, copper steam coils and copper water coils and accurate thermometer. By these means the mash is held at proper temperatures for the required length of time for the diastase of the malt to convert the starch of the grains to sugars, for the other enzymes to perform their functions, and withal to extract all available soluble materials from the grain. The liquor known as wort is drawn off from the spent grains, brought to proper temperature and inoculated with yeast from a pure culture, then fermented. When fermentation is finished the fermented liquor is separated from the yeast, and where distilled vinegar is to be made this liquor is passed through the still to obtain the low wines, as previously described. These low wines are mixed with the proper proportion of vinegar—the quantity depending on the system in vogue—together with a small amount of clean, clear, filtered beer, and passed over the generators to convert into vinegar.

The short process of vinegar making, no matter whether the raw material be fruit or grain, in a general sense is identical. It is known as the Generator Process. The generator is a wooden tank usually from 3 feet diameter by 7 feet high, to 3½ feet diameter by 8 feet high, inside measure, with a tight bottom. This tank is filled with shavings specially made for the purpose. Beechwood is most preferable, though spruce makes quite a satisfactory shaving, but shorter lived. Strips of rattan are sometimes used as a substitute for shavings. About eight inches from the top of the generator is fitted a perforated wooden head. On this perforated head is fitted a balanced dumper which serves as a distributor. Near the bottom of the generator, around it, are bored a few small holes. These are for air intake. The alcoholic liquor, known as the feed, is led to the dumpers in measured quantity, varied ac-

cording to the material or system. The quantity ranges from about 13 to 30 gallons per 24 hours. Being distributed over the perforated head it trickles down through the shavings, by which it is split or spread into very fine particles. The air coming in through the air holes near the bottom of the generator passes up through the shavings against the feed material and out at the top. On its way a portion of the oxygen in the air combines with the alcohol present to produce acetic acid. The air must be proportioned properly to insure the best returns with minimum loss by evaporation or over-oxidization. Competent operators are very keen to note the slightest indisposition of one of their patients, the generators, and know the remedy to apply to bring it up to normal health. By this plain explanation it is meant to show that in the quick process of vinegar making the action of converting alcohol to acetic acid is chemical rather than the result of bacteria.

In conclusion, it must be evident by comparing the different methods and materials used as shown in the foregoing: That the practice of utilizing waste fruits for vinegar making is a travesty on the intent and purpose of the pure food laws. That there is utter disregard of any normal or statutory laws of sanitation governing the materials employed for cider vinegar. Foul, rotten and wormy fruit being used, and not cleaned or washed before pressing cider from it. Contrast with this the selection of grain for distilled vinegar and the due regard to sanitation evidenced by the care exercised in cleaning and washing the grain preparatory to processing. The conclusion must follow that some legislative action should be taken at once to prohibit the use of filthy waste fruits for vinegar making; which action would automatically tend to gain recognition for the clean, pure, wholesome product—vinegar made from carefully selected, highest quality, clean, sound grain.

#### Cider and Vinegar

Every indication seems to point to a large crop of apples in the Northwest, although not anywhere as large as originally estimated. The crop seems fair throughout the United States. The fruit growers of the Northwest are thoroughly convinced it will not pay to ship anything but good grades of apples to Eastern markets on account of excessive freight rate. There is nothing that injures a fruit market more than placing cull fruit on sale. It pulls down the price of good fruit and puts an extra supply on the market which will net the grower no money. Therefore we advise all apple men to consider the cider mill and the vinegar factory one of their best friends, and to furnish them with the proper supply of apples during the coming year. The more off grades they give the cider mill and vinegar factory the better their net results will be at the end of the year. In some districts there are vinegar plants, but in most instances these are

not able to take care of the entire supply of cull apples; fruitgrowers should provide against such emergencies by securing cider presses themselves with which to convert their own cull apples into cider or vinegar. Save the waste by buying cider presses. Saving the waste in many kinds of business, like the meat-packing business, is said to be the sole profit. The pure food laws are protecting the fruitgrower now in the vinegar business, so there should be a splendid opportunity for converting all the waste apples into vinegar, thereby making good money.

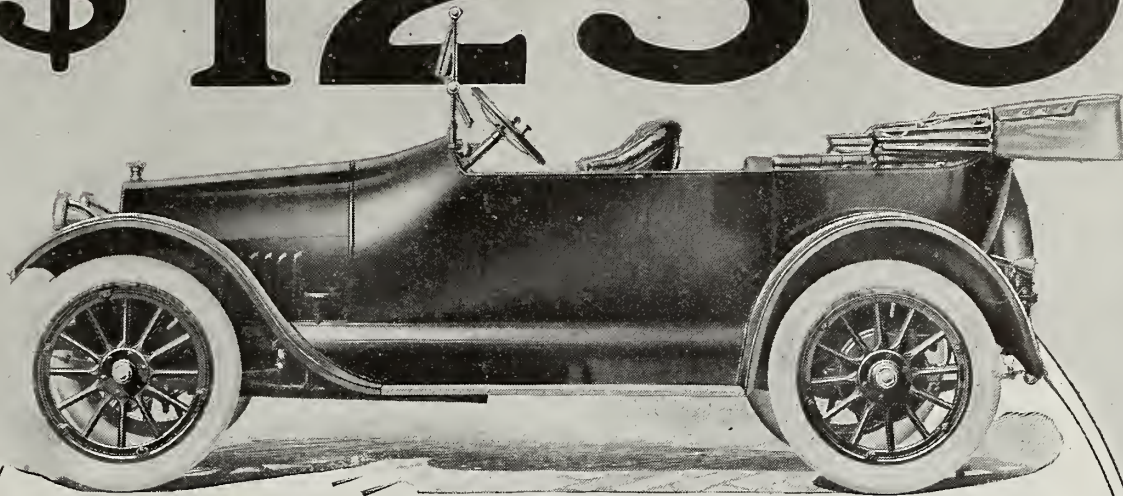
#### National Apple Day

National Apple Day will be celebrated in 1914 on the third Tuesday of October. This date has been adopted by a very large number of associations and states in the United States and Canada, although some states have an Apple Day of their own. Many Northwestern people feel that inasmuch as the Northwest grows principally winter apples the National Apple Day should be celebrated later on in the year when Northwestern apples are ready for consumption. But inasmuch as it is impossible to please every section there is just one thing to do, and that is for the Northwest to make the best of it and help the day along, even though the date seems a little early. However, it certainly seems wise to stimulate the public in consuming activity as early in the season as possible and get them in the habit of buying and eating apples.

The Apple World is a new publication, the official organ of the Apple Advertisers of America, an organization promoted and started by the advertising committee of the International Apple Shippers' Association, afterwards extending the scope of the organization to include growers, shippers and handlers of apples all over the United States, for the purpose of advertising the apple with an aim of showing its value as a food and diet with a view of stimulating the consumption and increasing demand. Mr. U. Grant Border, an apple dealer in Baltimore, is editor and Leonard B. Nolley, an advertising man, is the business manager. The initial number of the *The Apple World* in June is very very attractive, with a very significant cover page showing a great big apple, with the map of North and South America, the map of North America being labeled "The World's Apple Orchard." This first number is attractively gotten up typographically as well as editorially, first class in every respect. It is to be hoped that the aim of *The Apple World* will be accomplished and we wish it success in showing the dealers how to advertise the apple in an effort to induce a larger consumption and greater demand. If they succeed in doing this one thing alone and doing it well—the main object of the publication—O, great will be the satisfaction of achieving something and being able to say "It is well done."



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### A New Spray for the Control of Insects

The following article appeared in a recent issue of "Mollers Deutsche Gartner Zeitung," published at Erfurt, Germany: "In response to a request from the honored editor of 'Gartner Zeitung' I express below a well-grounded proposition regarding the adoption of a new

spray which will be of great help to the gardener, orchardist and vintager in their fight against insect pests. Considering that a remedy can become universally serviceable only when it is cheap, generally known, harmless and easily applied, I quite disregard the customary mercantile spirit of secrecy.

The spray consists in a boiling down of seaweeds *Chondrus crispus* and *Girgatina mamillosa*, known in the market by the name Carrageen. Boil 2 kg. Carrageen in 100 kg. of water for one hour, adding enough water during boiling to make good the waste from steam. After straining and cooling you will



have a rather thick, gluey fluid. When this is sprayed on plants it will dry to a very thin but tenacious coating. Later on this coating loosens by rolling up and peels off. Naturally the application must be made in dry weather, as rain would dissolve the mucus. Imbedded in this mucus, which does no injury even to the most tender plants, you will find the little creatures. It is to be presumed, of course, that through careful spraying the insects have been actually hit. Since these creatures are not capable of any great exertion, it becomes evident that this simple means will be very effective. In the drying of this fluid the insects are glued in the thin skin and, killed, fall with it to the ground. Should more thorough work be desirable, as e. g., reaching insects in the bark of trees, then a five to ten per cent solution of bezine or petroleum must be added. The fluid has the valuable characteristic of uniting with these liquids into a more tenable and durable emulsion. The mixture must be well stirred to make an emulsion. I am of the firm conviction that this benzine-lime mixture, whose waxy coating will detach the bloodlice and their eggs, as also the caterpillars and pupa of other insects, will make an application of the indispensable poisons, such as arsenate of lead and others, superfluous. I am ready to furnish samples of Carrageen for trial where they will serve a technical purpose. I hope to be able to make an improved product from Carrageen which will do away with the ever troublesome process of boiling.—Dr. Phil. Max Issleib, Madgeburg, Germany."

#### Success With Hens

Raise chickens and thereby reduce the cost of living, and have a lot of fun doing it, is the advice of Robert Joos in his book, "Success With Hens," just published by Forbes & Co., Chicago (\$1.00). This is a complete guide to

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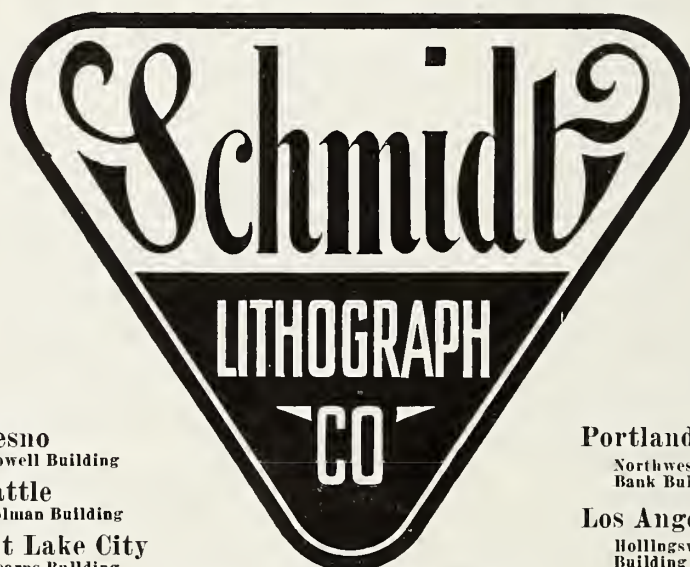
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poultry raising that thoroughly covers the subject by an expert. It is clear, practical and up-to-date. The fifty-five chapters give full directions for the hatching and brooding of chickens, incubation, feeding and housing, increasing the egg supply, cure of diseases, the marketing of eggs and fowls, and everything pertaining to the care of hens. Nothing is given but the best methods, and only those which have been proved by the experience of successful poultry keepers. The small and large poultryman, the beginner and the experienced, will find this book indispensable. It will reduce losses and increase profits.

Poultry raising is receiving a lot of attention these days, and deservedly,

for this "billion dollar industry" is an important one, ranking next to corn in the United States census report of land products. It is the hen that lays the golden egg which pays off the mortgage. Of course there have been failures in the poultry business, but not any more in proportion than in any other business. They are due to a lack of the preparation which the reading of such a book as this would provide. As the author says, "poultry raising, like any other business, requires work and good judgment. It offers big opportunities for the poor man, as it can be started on a small scale with very little capital, from which it can be increased gradually to an independent livelihood."



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### Secrets of Success in Canning

J. P. Zavalla, before California State Fruit Growers' Convention

**I**N general the heavy losses that sometimes occur in a canning plant are due to the fact that the different manipulations involved in the process of canning are improperly performed. The operations of canning as performed at home are in all cases easier than those employed in a large plant. Nevertheless it sometimes happens that canning at home becomes a little difficult and consequently the damage of the home-canned goods soon takes place. If we analyze the different factors that intervene in the decomposition of canned fruits and vegetables we will find that the most important are as follows: (1) Use of unfit raw material. (2) Use of unfit cans and glass jars. (3) Carelessness in the matter of cleanness. (4) Over-filling of the cans. (5) Carelessness in the matter of sealing the cans. (6) Carelessness in the matter of cooking the cans. These factors will be discussed in an ample and simple manner so as to give a clear understanding of the influence that they exert in the canning industry.

By unfit raw material we mean those fruits or vegetables which, due to one reason or another, are partially decomposed. The decomposition of fruits and vegetables is due to the action of very small organisms which can be classed into three groups: (a) Molds; (b) yeasts; (c) bacteria. The effects of

these organisms upon the fruits and vegetables become more noticeable when the surrounding temperature conditions favor their growth, and also when the decayed portions are allowed to remain in contact with the sound raw material.

These facts, considered in their true value, would be sufficient to prove the necessity of making a very careful selection of the raw material before it is canned. This operation is very simple, and it certainly pays to have it done as well as possible, for it will help the canner a great deal in obtaining a better looking product and also of long-keeping qualities. An operation that should be always performed is the blanching of the raw material before it is delivered to the canner. In this way we will greatly improve the appearance of the finished product. The blanching can be done by using a tank filled with hot water or any other thing fitted for that purpose, in which the raw material should be submerged for a few minutes with the aid of a basket.

The use of unfit cans and glass jars is a point which every canner must give a great deal of attention. The making of tin cans has improved right along since the beginning up to the present time, and as a result of this improvement we find that one of the greatest achievements of the industry is

the making of sanitary enameled cans. The reason why these cans are called sanitary is no other than that of the use of a very small amount of lead in the sealing operations. The advantages of this method of making cans cannot be doubted. The danger of poisoning effects due to the action of salts of lead has been minimized to such an extent that now it is of little consequence.

The inspection of the cans before they are sealed is an operation which by no means should be neglected. The time is coming when the machinery used for making the cans will reach such a high state of perfection in the matter of seaming that no allowances will be necessary for leaks due to imperfection on the side seaming of the cans. But as long as this matter remains to be solved the inspection of the cans, to which we referred in a previous paragraph, should be accomplished before the cans are filled with fruit if saving of money and time is the aim of the canner. The glass jars used in canning should be in all cases free of cracks which in time will break, due to lack of care in the matter of handling them or to differences in temperature. The rubbers should be new and caps should be sound and well fitting.

One of the most important features of the different steps involved in the operations of canning is that of the hygienic conditions under which the canning of fruits and vegetable is accomplished. The raw material after it



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is cut in pieces, for instance, has to be thoroughly washed. In this way we will secure a better looking product, especially when glass jars are used. Besides this, by using water of good quality in the operation of washing the fruit before it is canned, the number of organisms that usually come in contact with the raw material will be decreased, thereby facilitating the preservation of the fruit. Fruit that drops on the floor should never be put in cans before it is washed. The cans and glass jars, before being filled with fruit, should be carefully washed. The tables used for cutting the fruit, and also all the outfit used in the operations of canning, should be kept as clean as possible.

The cans and glass jars should be filled with fruit in such a way as to leave plenty of room for the syrup and also to facilitate the sealing of them. If the cans are over-filled the operations of capping are made difficult, especially when it is done by hand. Besides this, the danger of putting the fruit in contact with the acid and solder used for sealing is increased. The operation of sealing the cans is an important one, and the canner should take plenty of time to secure a good sealing. When the sealing of the cans is done by hand it requires the aid of experienced hands, otherwise small openings may be left, and therefore the action of the sterilizing bath will be of little value.

The last step in the canning operations is the cooking of the raw material. This operation can be considered as one of the most valuable features of this industry. If the sterilizing process is neglected the whole season's pack will be lost, no matter how careful the preceding operations have been accomplished. In order to facilitate the cooking of the fruit it is necessary to have it classified according to degree of ripeness. If this operation is carefully done much of the troubles connected with the cooking are reduced to a minimum. The water used for cooking should always be kept at the boiling point. The length of time that the raw material should be cooked depends on the nature of the raw material itself.

It is a very difficult proposition to try to state definite figures to be used in the process of cooking, for the simple reason that they vary from one day to another. Then the best way to be followed in order to ascertain the right time of cooking is by making several tests during the day's run. The heat penetrability while cooking the fruit varies with the kind of fruits used, with the length of time, with the temperature of the cooking bath and finally with the concentration of the syrup. By heat penetrability is meant the time required to register at the center of the can the surrounding temperature. The higher the temperature registered at the center of the can after certain period of cooking the less

the danger of getting spoiled cans after this operation is done. One of the best ways to follow in order to know when the fruit is thoroughly cooked is by testing the pieces contained in a can. If they show the same appearance in color and also the same degree of hardness it will prove that they have received the right time of cooking. If the fruit has been cooked during thirteen minutes and its appearance does not show any sign of damage due to an excess of cooking, it would be advisable to prolong the cooking two or three minutes more, providing this increase in the time of cooking would do no harm to the product. In this way the probability of getting swelled cans due to under processing will be less, and financial results therefore better.

The previous discussion deals with the practical methods of minimizing spoilage. A few words regarding the "germs" that cause spoilage after canning may be of interest. In general organisms that occur in spoiled cans of fruits differ from those in spoiled cans of vegetables by being more easily killed by heating. The organisms in spoiled fruit are principally yeasts and molds, all killed below the temperature of boiling water. Those in swelled cans of peas, asparagus, etc., are usually of types of bacteria killed above the boiling point of water and hence require heating under steam pressure. Their resistance is due to formation of bacterial spores or "seeds" which are very hard to kill. If these are in the cans or on the vegetables, etc., they will multiply in the cans and spoil the vegetables if the temperature has been insufficient or the time too short.

Fruits contain a great deal of fruit acids that aid in sterilization or killing the germs by heat; vegetables are usually almost free from appreciable amounts of acid, making sterilization for this reason difficult. These facts explain why it is necessary to use extra precautions in sterilizing vegetables and why fruits are easily sterilized. It also explains why spoilage of fruit is usually due to leaks through which yeasts, etc., gain entrance, while swelling is often due not to leaks, but to growth of bacteria that were sealed up in the cans and survived cooking. In sterilizing fruit, then, one of the principal aims of cooking will be simply to

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render the fruit palatable and of the proper texture; if this is accomplished at the boiling temperature the yeasts, molds and bacteria on the fruit will be killed. If spoilage then results it means defective and leaky containers. Vegetables, on the other hand, because of the resistant bacteria spores, must be cooked under pressure, not with the idea of cooking or rendering them palatable primarily, but with the idea of killing the bacteria that cause swelling and souring. If pressure cookers are not available for vegetables repeated sterilization at 212 degrees, the boiling point of water, may be used; that is, three heatings on three successive days. The time between each heating allows the bacterial spores to sprout, and when young they are very easily killed. Hence if the spores have survived the first heating they will sprout between the first and second heating or second and third, and can then be killed at 212 degrees.

By way of summary it may be stated spoilage is due chiefly to the action of "germs" or small living organisms that decompose the canned goods. Their activity is favored by the following factors: Six defects mentioned at the opening of this article. The methods of keeping down spoilage consist in avoiding or controlling the above conditions.

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throughout the United States, original estimates will not be fulfilled. Much encouragement is being offered by selling concerns and assurances given in the way of reasonably satisfactory prices, from the fact that they have stronger connections with selling agents in many more consuming cities, thus enabling them to seek a wider distribution than ever before. The profits of any business are made in two ways, on the prices secured and the minimizing of cost of production. It behooves the fruitgrower to give the latter most earnest attention and adopt any method that may be a saving to him in either growing or harvesting his crop. Three years ago the editor bought the first grading machine that was ever placed on the market,—the first one he ever saw. Since then the idea has become very popular and many apple graders are saving the growers money. Sorting and grading can be done for from three to four cents per box by using a good grading machine. Proper grading sorts the fruit in sizes, so that packing can be

more economically done, in fact many grading machines have saved from two and one-half to three cents per box on the packing. The old methods of sorting and wiping cost from five to eight cents per box. It is the experience of people who have used graders and sorters that from five to ten cents per box can be saved. A man with from two to four thousand boxes can save the price of a grading machine in one or two years, and with a large crop can not only save the cost of the machine the first year but considerable in addition.

#### A New Northwest Cold-Storage Plant

The Producers' Storage Company of North Yakima is erecting a fine cold-storage plant for the fruitgrowers. A company has been organized for this purpose with the following set of officers: General manager, F. E. Sickles; president, O. S. Follansbee; vice-president, U. G. Merrill; secretary, Walter Hebert; treasurer, E. L. Porter.



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of Congress of March 3, 1879.

**Saving the Waste.**—Every year in the Northwest, particularly when the markets are glutted, large quantities of fruit are shipped which bring the grower very little money or are allowed to go to waste without being picked. This is more particularly true in reference to peaches than almost any other fruit.

California sets a splendid example for the Northwest. California is the largest producer of canned fruits of any state in the Union. Last year the output of canned goods in the State of California was \$15,000,000. This does not include dried and evaporated fruits, raisins or any of the other by-products which are produced in that state.

The total fruit crop in the Northwest probably does not exceed \$15,000,000. California has converted more fruit into canned goods than the Northwest produces. The story is ably told in an article appearing in this issue entitled, "The Cannery's Interest in the Fruit Industry," by C. H. Bentley, manager of the California Cannery's Association, comprising some twenty-six different canneries, canning over two-thirds of the output of the State of California. This article in detail gives the volume of business in all of the different kinds of fruits—peaches, pears, plums, apricots, nectarines, grapes, etc.

If every reader of "Better Fruit" will carefully read this article he cannot help but be impressed with the importance of the canning industry in connection with fruit growing. If the Northwest would only wake up and comprehend the magnitude and importance of the canning industry to the Northwest there is no question but what the Northwest could promote a sufficient number of canneries and by-product factories to take care of the surplus that occurs almost regularly

each year when the fresh fruit markets become oversupplied. Vinegar plants, evaporators and by-product factories should take care of an immense quantity of apples good in quality but not sufficiently high in grade to justify Eastern freight shipment.

Hotels and restaurants prefer canned apples to fresh apples for pies and cooking in various other ways. Canned apples are more convenient and more economical for such trade.

One concern in California ships over 24,000,000 cans of apricots, peaches and pears annually to England alone.

In this edition of "Better Fruit" will also be found a number of other good articles. One is entitled "Secrets of Success in Canning," and another article on "Utilization of Waste Product in Vinegar Making," and another on "Drying Apples," and still another article giving sixty-eight hy-products that may be made by any apple grower's family from the apple alone.

It is during the months of September and October when the greatest waste occurs in the fruit business. For this reason, that the object lesson may be significant, "Better Fruit" has thought it wise to issue a special edition on the subject of Saving the Waste.

This brings the writer to another subject for consideration, and that is Economy. In order to make any business profitable, waste must be eliminated. Canneries, evaporators, vinegar plants and by-product factories of all kinds will make an immense saving by utilizing what has annually gone to waste in the past few years in the fruit industry in the Northwest.

**1914 Apple Crop.**—Every year there are conflicting reports about the size of the apple crop in the United States. Regularly we have the usual number of estimates which state "This year's crop will be the biggest in the history of the business." Estimates have already been made for the Northwest of as high as 23,000 cars. The conservative estimates at the present time indicate about 15,000 cars. Reports are very conflicting about the Middle West. People who are not interested in the growing or selling of apples who have been in Kansas, Nebraska, Iowa, Illinois and Indiana state that the crops in these states are comparatively light this year. It would seem that there is some truth in this view of the matter, inasmuch as one of the daily newspapers the other day stated that Kansas had not had a rain for ninety-seven days. All reports seem to agree pretty generally that the crop in New York and Pennsylvania will be large, with a splendid crop in the New England states, although the quantity produced by the New England states is not great in volume. Growers in New York state will have to grade this year in accordance with the state law of New York. One well-posted man states that the grading rules were such that not to exceed eighty per cent of the crop would be packed if they attained proper size. Reports from New York state indicate there are many small apples at the present time and unless

the growth was very rapid from now on it was his opinion that the quantity packed would be materially reduced on account of under-size. However, there seems to be no question about the fact that New York and Pennsylvania will produce large crops of apples.

Some are estimating a 50,000,000-barrel crop this year in the United States. Information is more or less conflicting and as many reports give very low estimates in many of the other states, and as the year has been dry, which would cause a great many small apples, it does not seem as if one were justified at the present time in assuming that the United States would produce 50,000,000 barrels in 1914.

**Newtown Pippin.**—This seems to be a light year for the Newtown crop. Reports from Virginia, while giving 65 per cent of the crop in other varieties, estimate the Newtown crop in that state at only 25 per cent. At Watsonville, California, the Newtown crop is estimated at about 65 per cent of their crop. Southern Oregon is billed for a light Newtown crop and in the Hood River Valley the Newtown crop is about the lightest set of any. These are the principal Newtown producing sections of the United States—in fact, the only ones where Newtowns are grown to any great extent, as only a few are produced along the Hudson River in New York state, and a few cars grown in the Yakima Valley, where the Newtowns are not grown extensively. The Newtown is not grown in the Wenatchee district in a commercial way, neither is it grown in Montana, Idaho, Utah or Colorado or in any of the Middle Western states. In fact, Newtowns are only grown in five states—Oregon, Washington, California, Virginia and New York.

**The Proper Spirit Necessary to Handle 1914 Apple Crop.**—While it is generally admitted that the crop of apples will be large this year, perhaps somewhere around the 1912 crop, this does not by any means indicate that the market outlook is discouraging. The apple growers, their associations and marketing concerns should be awake to the fact that the United States must be made to consume more apples this year than ordinarily. This will not be done if the proper effort is not made; it can be accomplished and satisfactory prices obtained if the business is handled in the right sort of a way. Conservative marketing, intelligent distribution and energetic salesmanship should be the watchwords. Everyone should work for the closest harmony between the fruit grower, the association or distributing concern, the dealer and the retailer, all aiming to co-ordinate their efforts in such a way as to serve the consumer in the most satisfactory manner at reasonable prices. By such methods the consuming capacity of the United States can be immensely increased, and with the proper increase a reasonably good demand can be looked for which will mean fairly satisfactory prices with a reasonable



profit for everyone engaged in the business.

Do not be discouraged by the large estimates that are being reported. On the other hand, do not fool yourselves by under-estimating the quantity. Assume that there is going to be a good sized crop and make proper arrangements for selling in every section of the United States, so that the crop will be wisely and well distributed. See that the quality is first class in every respect, the price reasonable and the consumer pleased. By such methods, the 1914 crop can and will be handled at prices which will pay a fair profit for everybody connected with the apple industry.

**Export Trade.**—The export trade of apples from the United States is about ten per cent. At the present time there is much uncertainty about the quantity that will be exported. By proper methods of salesmanship, distribution and advertising this country can be easily made to consume ten per cent extra and make up for the loss of trade in the export business.

#### Essentials of Bread-Making

"Good bread can be made from either good hard wheat flour or from good soft wheat flour," says Dean Henrietta Calvin of the Oregon Agricultural College, "but you should know which you are using, because they require different treatment. Hard wheat flour may be made into a soft dough, and if it is very hard wheat then the bread should be kneaded down several times. Soft wheat flour should be made into a very stiff dough and the bread will not need to rise more than once before it is put into the pans. Home-made yeast is much better than the dry yeast. It can be likened to the seed saved by a good gardener from his own healthy plants. When properly prepared it contains millions of live, growing, microscopic plants. Liquid yeast can be kept in a cool, dark place about two weeks. Sweet milk is the best of all liquids for bread-making. It should be scalded and then cooled. The micro-organisms that cause sourness in milk are thus heated until they all die. Milk bread will be a little yellow, but its flavor is better and it is more nutritious than water bread. Water may be used instead of milk, however, and good bread can be made with it. Sugar is a good yeast food. A little added to the bread does not affect the flavor of the bread, but does quicken the action of the yeast. Salt is used for flavor. Such a small quantity as is used in bread does not materially retard the growth of yeast, but does whiten the bread. Bread while rising must not be kept too warm. More bread is spoiled by too much heat than too little. Bread that feels warm to the hand is too warm. The bacteria which causes sourness, and which are to the bread baker what weeds are to the gardener, grow rapidly in the dough if it is quite warm."

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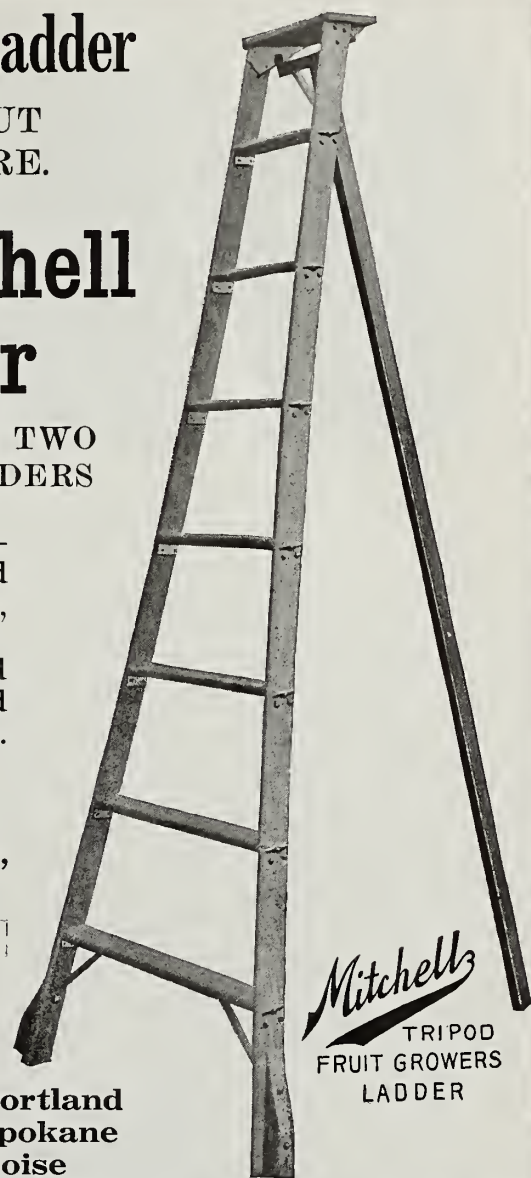
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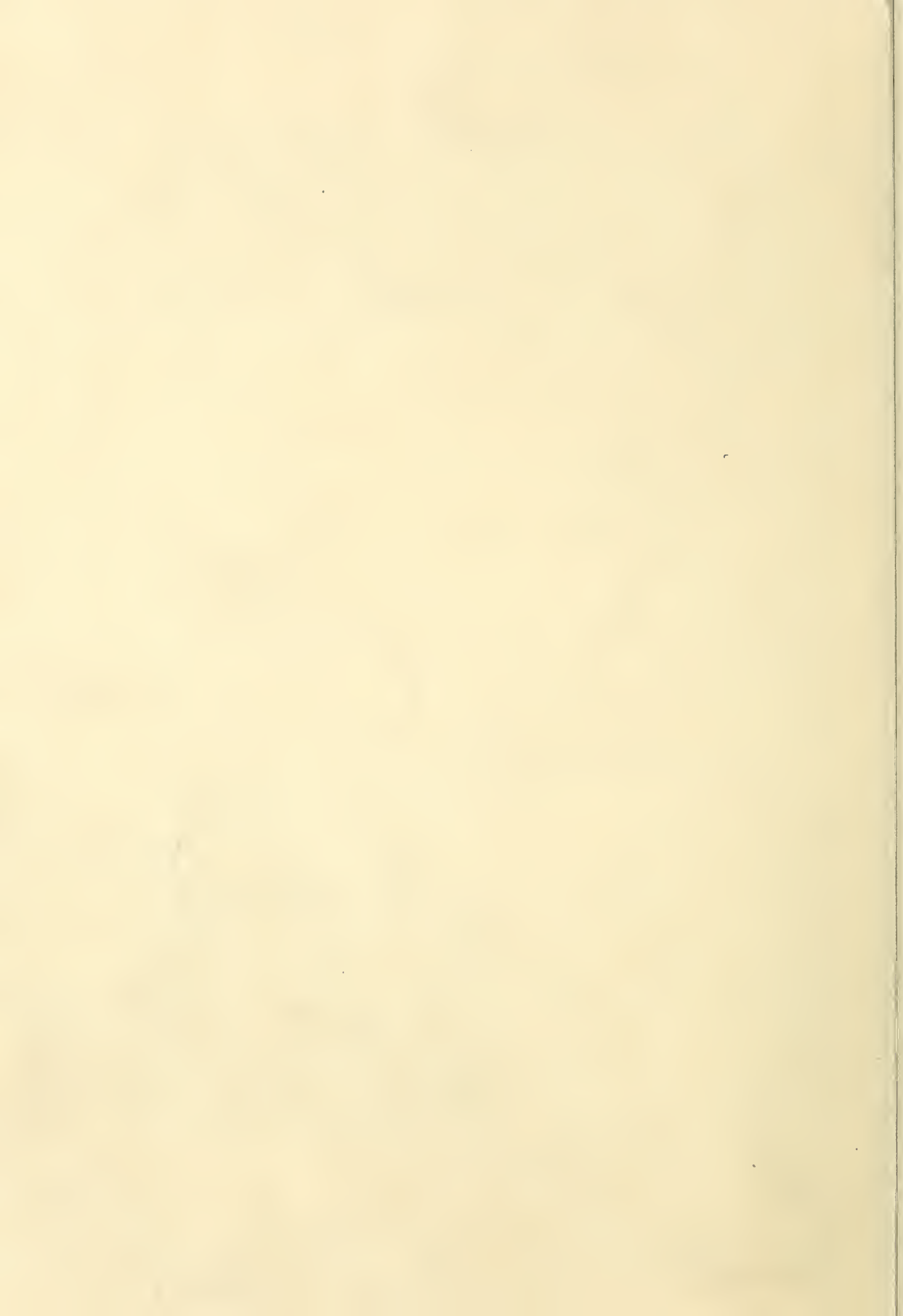
#### Prevent Winter Injury of Fruit Trees

There has been a good deal of winter injury and winter kill of fruit trees in the Northwest this past winter. In some cases the trunks of the trees were the parts that suffered and in others the twigs and small branches were the only parts of the plants injured. The winter was not extremely cold, but there was some warm weather followed by colder, and the harm seemed to be the result in many cases of fluctuating temperature. The trees that were growing in sod or in permanent cover crops or even weeds and grass did not suffer as much as the best clean-cultivated and irrigated orchards. There are orchards in several districts that show exceptions to this general statement, but they are rare and usually show some other condition out of the ordinary in their surrounding conditions, or in culture and treatment. In sections where fall rains start before hard killing frosts have stopped the growth, winter killing has been common in some orchards before a system of cover cropping was

established. Annual cover crops that make a good growth in the fall are usually helpful in preventing winter injury in regions where there is plenty of rain or snow fall in the winter. For the best results the annual cover crops should be planted not later than the middle of August. The permanent cover crops of clover or alfalfa should be planted earlier in most localities. For the annual cover crop, rye, winter wheat or field peas are best. Winter vetch is a splendid crop to use of the seed can be secured. In many ways it is the best of all the annual crops.—O. M. Morris, Horticulturist, Washington Agricultural Experiment Station.

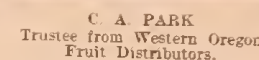
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I think I realized fully fifty percent more berries  
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HOOD RIVER, OREGON  
June 23, 1914

before it is sealed over that it bleeds badly, thus losing much of the flavor of the apple and will not have as white nor as nice an appearance when cooked.

The type of evaporator we like best, and the kind we are using, is constructed in such a way that the cold air is admitted at the bottom and passes through past the furnace and hot pipes, becoming thoroughly heated and dried, so that nothing but dry air reaches the fruit. The fruit is spread on trays placed in the kiln in a slanting position, so as to permit the dry air to pass through between them, both over and under the fruit, thus absorbing and carrying off the moisture without causing the moisture from one tray to pass through the fruit in the other trays. This causes the slices of apple to seal over quickly and stops the bleeding, thus retaining all of the natural flavor. To pare our apples we use the Rival apple parer, fitted with the slicing attachment. This machine pares, cores and slices the apple and delivers it into an incline shoot, which carries it to the trimmer and spreader, who trims out all bad parts and spreads the apples onto the trays. The tray is then put into the bleacher, after which it is placed into the evaporator and remains there until it is fully cured. The disadvantages of this type of evaporator are that it requires more labor to operate than the hop-kiln type, and it costs a great deal more to construct. The advantages are: It is a general evaporator,—in it we evaporate every kind of fruit and vegetable, also eggs. The quality of the product is superior to that produced by any other type so far as we have seen. The other two types of apple evaporators are the so-called stack evaporator type and the like-fresh type. Both are good and by some thought best of all, but we prefer the other two types.

There are a number of large evaporators which operate on apples in this state. We have two in Yamhill County, one at Amity and our own at Dayton. Besides these, there are a number of small evaporators in different parts of the county. The output of our evaporator this season will be about 120,000 pounds of evaporated apples, equal to about 25,000 boxes, or 31 cars of fresh apples. We do not know the capacity of other evaporators nor the amount of the annual production in this state, but New York State produced 2,000 carloads of evaporated apples in 1912. This was equal to 20,000 cars of fresh apples; as California, Missouri, Arkansas, Michigan and Pennsylvania are all large producers of evaporated apples and will not fall far behind New York, we believe it is safe to say that not less than 10,000 cars of evaporated apples, equal to 100,000 cars of fresh apples, were produced in the United States in 1912. As very few apples, other than culls, which would otherwise go to waste, get to the evaporator, we can readily see what an important place in a community is filled by the evaporator. Another feature is

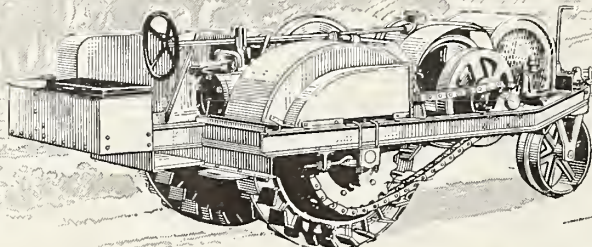






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have all the apple sauce they could eat if they only knew it, and would if they knew.

If every inhabitant of the United States would eat one pound of evaporated apples each year it would be equivalent to 18,000,000 boxes of fresh apples. Would not the best solution of the problem be: Pack only the best apples for the fresh-apple market and evaporate and can all of the off grades. In this way pests would not be spread, the grower could sell all of his apples and the poor could have apples to eat.

### The East Has Faith in Apple Growing in the Northwest

From the Wenatchee Daily World we quote an interview with W. N. Mears, who in connection with other Boston associates is spending a million and a quarter dollars in producing apple orchards. The World quotes Mr. Mears briefly as follows:

"What do the Eastern people think of the apple industry at the present stage of the game? Well, I'll tell you what Boston people are doing in this part of Washington and you can draw your own conclusions. A million and a quarter of dollars is being spent on three apple projects by Boston capitalists in North Central Washington, and this, mind you, without any hopes of financial returns on their money for years to come, or until the trees begin bearing. There is a project at Chelan backed by Boston capital, and one at Tonasket, besides ours here at Okanogan—and not an acre of land nor a share of stock is for sale. Personally I have greater faith in the future of the apple business now than at any other time since I entered the game, and I am more firmly convinced than ever that right here in the Okanogan Valley we can raise the best apple in the world."

### New Plant Pathologist for Medford District

A specialist in plant pathology, Dr. M. P. Henderson, University of Wisconsin, has been appointed by the Oregon Agricultural College as pathologist and assistant county adviser of Jackson County, with headquarters at Medford. Under the provisions of the county farm adviser law Jackson County maintains a county adviser co-operatively with the extension division of the college. This office is filled by Professor F. C. Reimer, superintendent of the Southern Oregon Experiment Station at Talent.

The new arrangement was secured through co-operation between the Experiment Station, the branch station and the extension division on the one hand and the County Court of Jackson County on the other. It goes far to assure close co-operation in carrying on the work.

The newly-appointed pathologist is a graduate of the Utah University and took his doctor's degree in plant pathology at the University of Wisconsin last June. He is a native of Idaho and has had extended experience in orchard work under Western conditions.

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of apples was within the reach of all classes there would be no cause for anxiety, as they would all be eaten and more called for. But, says the grower, we cannot produce them cheaper. There are so many culls that the first-class apples cost us too much to produce. True, but if you could sell your culls and waste apples for seven or eight dollars per ton in bulk, the first-class apples would not cost so much.

This could be done if everyone could or thought they could afford to eat apples.

The evaporator could afford to pay you eight dollars per ton for your culls and sell the evaporated apples at a price which would admit of them being sold at retail in any city in the United States at a price that would be equal to not exceed seventy-five cents a box for fresh apples. Even the poorest could



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**G. B. LANHAM, Pacific Coast Representative, Wenatchee, Wash.**

## Dried Fruits—"By-Products in the Northwest"

By W. J. Patterson, Portland, Oregon

IT has been said by one of the wise men of somewhere that the principal difference between a rut and a grave is that the former is longer than the latter and more difficult to get out of. Five years ago one of the large manufacturing industries in Illinois was being run at a profit of less than three per cent on the invested capital. The output had a ready sale, there were few unexpected losses and the management was careful and economical, but despite all of this the profits hardly warranted the continuance of the business. One day a suggestion was made toward the utilization of by-products, which resulted in such profitable use of material and time, formerly wasted, that last year the company paid a dividend of 13 per cent and the output from their by-products departments far exceeds that of their original business.

This firm got out of its "rut." Coming nearer home, it is stated on reliable authority that in three of the principal fruit districts of our Pacific Northwest last year there was a total loss of over 20,000 tons of good, sound, healthy apples, besides the large amount virtually donated to cider mills by growers. This fruit, while not up to the high standard required for fancy-box purposes, was perfectly suited for dry curing by any modern low temperature evaporating process and would have resulted in over 12,000,000 pounds of dried fruit readily worth approximately \$1,200,000.

To those growers whose efforts are toward the permanent and profitable establishment of the fruit industry in the Pacific Northwest, this loss must appear little less than criminal. Its realization must bring to them a determination to find a remedy. The day of broadcast selling of "orchard tracts" is passing, if not altogether gone, and the intelligent owner is earnestly looking for actual profits from his holdings. It has been demonstrated to the satisfaction of most intelligent growers that the raising of fancy fruits without a market for seconds and other grades is figuring far too closely to make the industry an enticing or profitable one.

What is the remedy? By-products, the salvation of many an American industry. By "by-products" is meant that portion of the grower's output which heretofore has gone to waste and which in future must be made to yield a revenue. There is a constantly increasing demand for dried fruits, particularly apples, and for this product the Pacific Northwest has no competitor in the field. The apple grown in the warmer and more southerly states is insipid, compared to ours, and by a modern, low temperature evaporation process, or the withdrawal from the fruit of simply the tasteless, colorless moisture, leaving intact all of its tone, flavor and original color, we would have no worthy competitor in either home or foreign markets. It might be well, while speaking of foreign markets, to look more closely at conditions as they exist abroad, or, in

other words, "In time of war prepare for peace." By anticipating the probability of the destruction of many thousands of orchards and vineyards throughout Europe, which it will require years of time to restore, this unquestionably will increase the already enormous demand abroad for dried fruits and give us an opportunity to establish a permanent market. Action along this line cannot be taken too soon. It seems rather remarkable that with so many advances along other lines, the matter of the dry curing of fruits has virtually stood still for the past twenty years, and that it has only



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been in the last two seasons that a successful attempt has been made to modernize the methods and replace the old-time sulphured, sun-dried and direct-heat process by something more nearly scientific and up to date.

While market conditions are rather abnormal in the dried fruit industry, it is a fact proven by actual experiment by the writer that the problem can be worked out to great benefit and profit to growers in any district where there is an abundance of fruit by either the building of a large commercial evaporating plant in a central district or by large growers building their own plants. This would insure growers about \$16.00 to \$20.00 per ton for apples which are now going to waste and permit of a first-grade article being produced at under five cents per dried pound, or at present wholesale price would pay growers (operating their own plants) about \$35.00 per ton for their second-grade apples.

It would seem as if the remedy for the present difficulty is modern low temperature evaporation of second-grade apples—by-products—which will insure the growers an increasing profit, and this suggestion in a great measure applies to other fruits—prunes, pears, peaches, berries, potatoes, etc. The United States government is using millions of pounds of dried fruits annually and a "taboo" is now placed (in most markets) upon sulphured apples and lye-dipped prunes, very properly so, as neither is necessary if product is taken care of in a proper, sanitary manner.

**Book Reviews**

"The Home Vegetable Garden," by Adolph Kruhm, published by Orange Judd Company of New York, is a very instructive and valuable book for the fruit grower or any class of farmer who believes, as every farmer ought to, in having a good vegetable garden.

"Productive Orcharding," by Professor F. C. Sears, M. S., professor of pomology of the Massachusetts Agricultural College, is a new book on practical orcharding which has just been published by J. B. Lippincott Company, Philadelphia. The book deals with orcharding from the beginning to the end, including sites, varieties, culture of orchards, cover crops, pruning, pests, diseases, spraying, harvesting, etc. In fact, every feature of the industry is treated in a very interesting and instructive way, making the book very valuable for anyone engaged in the fruit growing industry.

"The Year Book for 1913," issued by the Government Printing Office, Washington, D. C., is just off the press. The Year Book is always full of valuable information. A few of the important chapters of this edition are on very important subjects, some of especial interest to the fruit grower, as follows: "Bringing Applied Entomology to the Farmer," "Factors of Efficiency in

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Farming," "Promising New Fruits," "Health Laws," "What the Department of Agriculture Is Doing for the Housekeeper," "Tree Surgery," "Supplementing Our Meat Supply with Fish," "Economic Waste from Soil Erosion," "Organization of Rural Interests," etc., including some valuable statistics in reference to various crops produced in the United States.

"The Management and Feeding of Sheep," by Thomas Shaw, published by the Orange Judd Company, New York, is a new publication just off the press. This publication is very thorough, comprehensive, and a very valuable one to everyone engaged in the sheep business. It is with some pleasure that we call the attention of fruit growers to this book, for the reason that fruit growers to a great extent are going in for diversity farming. They are finding that cover crops in the orchard improve the condition of the orchard and the yield, and in addition afford feed for sheep, hogs or cattle, bringing additional income at various seasons of the year. The author was at one time professor of animal husbandry at the University of Minnesota, and is regarded as a very high authority on the animal industry, having written a number of books on various titles—"The Study of Breeds," "Animal Breeding," "Feeding Farm Animals," "Management and Feeding of Cattle," "Soiling Crops and the Silo" and "Dry Land Farming."

"California Fruits and How to Grow Them," by Edward J. Wickson, professor of horticulture in the College of Agriculture at the University of California, has been fully revised. The fact that the seventh edition has been issued is sufficient evidence to indicate the popularity of this work. It is a practical treatise on the growing of all kinds of fruits which are grown in the State of California, and contains much valuable information for any orchardist, no matter where he may be located. The University of California, through the experiment station and agricultural college, has been a big factor in building up the farming industry of the state, and particularly the orchard industry, and, by the way, the orchard industry of the State of California is

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the greatest industry of that state, the value of the fruit crop being more in dollars than any other output of the state. It is with pleasure that we commend this book to the fruit growers. Part I contains six chapters on general features. Part II contains nine chapters on cultural methods. Part III has several chapters on varieties of fruits, like apples, apricots, cherries, peaches, nectarines, pears, prunes, plums, grapes, quinces, etc. Part V deals with semi-tropical fruits, like the fig, olive, grapefruit, orange and lemon. Part VI is on small fruits. Part VII is on nuts. Part VIII is on canning and preserving of fruit. Part IX is on fruit protection against insects, diseases, etc. Part X deals with utilization of fruit waste. The book is published by the Pacific Rural Press, San Francisco.

### From Far-Away Australia

Clyde Sampson, son of E. E. Sampson, recently returned from Australia, where he was engaged for two years instructing orchardists in the most improved ways of growing, harvesting, packing and selling fruit. He assisted in organizing the Australia Co-operative Exporting and Distributing Company, with head office at Melbourne and branches throughout the different fruit sections. Mr. Sampson states that growers over there have met with disappointments in co-operation in the past similar to the disappointments experienced in the Northwest. He states that the trouble has been largely due to the co-operation being started by theorists, but that now co-operation is getting on the right basis and that the co-operative concern for whom he has been working is rapidly increasing their business. It costs the Australian fruitgrower about twenty-five or thirty cents per bushel to harvest his crop. Apples are packed in what they call "cases," holding a bushel, and being 8¾ inches high, 14¼ inches wide and 18 inches long. The four sides are rigid and the apples are packed without any bulge. They formerly used excelsior, but Mr. Sampson showed them the diagonal pack, which enables them to pack the apples firmly and do away with the excelsior.

### List of Fairs, Apple Shows and Expositions for 1914

Vancouver, B. C., September 3-12.  
Vancouver, Wash., September 7-12.  
Interstate Fair, Spokane, Washington, September 12-20.  
Walla Walla Fair, September 14-19.  
Frontier Days, Walla Walla, September 17-19.  
Olympia Peninsula Fair, Port Townsend, September 12-20.  
Washington State Fair, North Yakima, September 21-27.  
Montana State Fair, Helena, September 21-27.  
Victoria, B. C., September 21-27.  
Nelson, B. C., September 24-26.  
Oregon State Fair, Salem, September 28-October 3.  
New Westminster, B. C., September 28-October 5.  
Utah State Fair, Salt Lake, October 5-12.  
Fifth Annual Apple Show, San Francisco, October 1-11.  
Manufacturers' Land and Product Show, Portland, October 26-November 14.  
Sixth National Apple Show, Spokane, Washington, November 16-21.

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In order to determine the efficiency of the different forms of agricultural extension education, surveys were made in four sections of the United States by which method 3,698 farmers in fourteen states were personally interviewed. Of these, about one farmer in every 1.5 visited takes a farm paper; one in 2.3 receives agricultural bulletins; one in 3.3 attends farmers' institutes; one in 6.5 belongs to some agricultural organization; one in 14.5 writes to agricultural institutions for advice; one in 23.8 has a few farm books; one in eleven gets personal instruction from agricultural demonstration agents in the South, and one in 159 in the North gets such personal instruction. One farmer in every 2.3 stated that none of the above agencies were helpful in his farming; one in 6.3 said the farmers' bulletins were the most helpful; one in 3.6 preferred farmers' institutes; one in 40.3 claimed farm papers as being the most helpful; one in 4.5 stated that all agencies were equally valuable; one in 43.7 said that experience was the only valuable teacher.

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We want the alert enterprising farmers who see this magnificent opportunity. So we make the most liberal terms. Take 20 years to pay. Call on us for long time loan of \$2000 for farm improvements if you want it. Investigate now. This block will soon be the most densely populated and intensely cultivated district in the west.

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We will sell you this rich, irrigated, Canadian land for \$35 to \$75 an acre. You need pay only one-twentieth down. Think of it—only one-twentieth down, and then the balance in 19 equal annual payments. Long before your final payment comes due, your farm will have paid for itself over and over again. Many good farmers in Western Canada have paid for their farms with one crop. Here are some of the startling features of the most remarkable land offer you have ever read:

**We Lend You \$2,000 for Farm Improvements** This offer of a loan up to \$2,000 is for farm development only, with no other security than the land itself, and shows our confidence in the fertility of the soil and in your ability to make it produce prosperity for you and traffic for our lines. This loan will help you in providing buildings, fencing, sinking well and breaking, and you are given twenty years in which to fully repay this loan. While enjoying the use of this money, you pay interest at only 6%.

**Advance Live Stock on Loan Basis** The Company, in case of the approved land purchaser who is in a position and has the ability to take care of his stock, will advance cattle, sheep and hogs up to the value of \$1,000 on the basis of the settler's note with interest at eight per cent, to enable him to develop more rapidly, on the right basis of mixed farming.

**Farm Made Ready by Experts if Desired** If you want a place already established, select one which our Department of Agricultural Experts has developed. On our improved farms, house and other buildings are up, well is dug, farm fenced, fields cultivated and in crop. All waiting for those who want an immediate start and quick results—all planned and completed by men who know—our own agricultural experts. Take twenty years to pay if you want to. We give free service—expert service—the valuable assistance of great demonstration farms, in charge of agricultural specialists employed by the Canadian Pacific for its own farms. This service is yours—free.

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## By-Products of the Apple

By C. L. Smith, Agriculturist of the Oregon-Washington Railroad & Navigation Company.

**Canned Wagener Apples**—Make a syrup of one cup of water to one cup of sugar. Pare, core and cut into eighths sound Wagener apples. Drop into the syrup and cook until clear. Pack closely into a glass jar, fill with the boiling syrup and seal.

**Canned Pie Apples**—Inferior fruit may be used, by carefully cutting away all the bad parts. Make a syrup as for canned apples. Pare, core and slice the apples, cook in the syrup until clear, pack closely in jar, fill with boiling syrup and seal. Any tart apple may be used.

**Preserved Jonathan Apples**—Pare sound Jonathan apples of medium size,

cook the skins in water to remove the color. To each cup of this water add two cups of sugar. Core and cut the apples into eighths, cook in the syrup until clear. Transfer carefully to jars, being careful not to break the pieces; boil the syrup down, pour over the apples and seal. They will be a dark, rich color.

**Apple Conserve**—Make a syrup of two cups of sugar to one-half cup of water. Use Jonathan, Yellow Newtown or Bellflower apples, pared and quartered unless the apples are large, then cut into smaller pieces. Boil the sugar and water until a rich syrup is formed, then add the apples and simmer until



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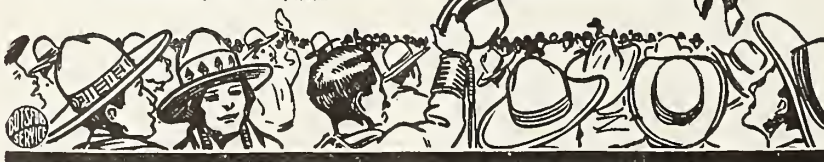
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40 Rounds of boxing each night in front of the grandstand by representatives of the Amateur Athletic Clubs of the Northwest



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clear. Take up carefully, lay on plates and let dry in the sun twelve hours, roll in sugar. Treat in this manner for three or four days, then pack in glass jars. This is fine to use in cake in place of other fruit.

**Apple Honey**—Pare, core and run through the coarse part of the meat grinder Wagener or other juicy apples. Add an equal amount of sugar, simmer gently for two hours, then seal in glass jars.

**Apple Marmalade**—Pare, core and cut into small pieces any coarse-grained apples. Cook until soft in barely enough water to prevent burning. Run through a sieve. Add an equal amount of sugar, boil until thick and put up in jars or glasses. Cover with paraffine. When cold this should cut like cream cheese. Lemon juice may be added while cooking if desired.

**Apple Marmalade, Spiced**—Spiced Marmalade is made the same as the plain, except that when the apples are cooking there is added a spice bag containing one teaspoonful of cinnamon, one of cloves and one-half teaspoonful each of nutmeg and allspice. This is removed when the marmalade is taken from the fire.

**Apple Butter, Plain**—Pare, core and slice the desired quantity of apples. Boil sweet cider until it is reduced one-half. While the cider is boiling add the apples. Cook slowly, stirring constantly. When it begins to thicken add one cup of brown sugar to each two quarts of butter. Boil until it remains in a smooth mass, when a little is cooled. About a bushel of apples to a gallon of boiled cider will be found the right proportion.

**Apple Butter, Spiced**—Spiced butter is made the same as the plain with the addition of a small amount of cinnamon and ginger.

**Pickles, Plain**—To one quart of cider vinegar add two cups brown sugar. When boiling add, a few at a time, apples which have been pared, cored and quartered. Boil gently until the apples can be pierced with a straw. Remove and pack carefully in a jar, pour over them the boiling vinegar and seal.

**Pickles, Spiced**—Make same as plain pickles, dropping into the vinegar a bag containing a little mace, cloves, pepper, allspice, celery seed, white ginger in small bits and ground mustard, leaving this in the vinegar until the pickles are done. Two or three whole cloves stuck into each piece of apple makes them attractive.

**Apple, Cabbage and Celery Salad**—Take equal parts of apple, celery and cabbage. Cut the apple into long, thin, narrow strips, shave the cabbage and cut the celery into small pieces. Have all cold and mix with a heavy mayonnaise dressing just before serving.

**Mince Meat**—To one pound of lean beef, boiled and finely chopped, add two pounds of chopped apples, one pint boiled cider, two cups brown sugar, one-half cup molasses, one cup of seeded raisins, one cup of currants, one-half cup chopped citron and a little



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ground spice. To this may be added a little marmalade, preserves, spiced ginger, orange or lemon peel, or candied cherries. The above is a good formula to follow, but of course may be varied to suit individual taste and the materials at hand. If too rich add more chopped apples. In place of cider equal parts of vinegar and water may be used.

**Preserved Apples, Whole**—Use Whitney No. 20 apples. Wash and steam until they can be pierced with a straw. Place in a syrup made in the proportion of one-half cup of water to two cups of sugar, let simmer gently for a few minutes, remove the apples and pack carefully in glass jar, boil down the syrup and pour over them, seal.

**Apple Chutney**—Pare and core twelve sour apples, remove the skin from three onions, clean one bunch of celery, seed one cup of raisins. Run all through a meat grinder. Put on to cook with one pint of cider vinegar, juice of two lemons, one-half glass of currant jelly, two cups brown sugar, one tablespoonful of salt and one of ground ginger. After cooking one hour add a spice bag containing two tablespoonfuls of mixed spices. Cook one hour longer, stirring constantly. Seal same as canned fruit.

**Apple Jam**—Pare, core and chop one pound of apples, add one pound of sugar, one cup chopped raisins, chopped rind and juice of an orange and lemon. Cook until the apples are clear and the mixture thickens like jam when cooled.

**Apple Relish** — Three pounds of apples, pared and diced. Three pounds sugar, one pound raisins, one pound pecans, two oranges; remove peeling and grind it in the meat grinder; then cut the orange into small pieces. Cook for one hour, adding the nuts five minutes before removing from the stove.

**Apple Relish No. 2**—Pare, core and slice tart apples. Cook in a very little water until tender; rub through a sieve. To one quart of pulp add one cup of sugar, one cup boiled cider, one cup vinegar, one teaspoon ginger, one teaspoon cinnamon, one-half teaspoon each of ground nutmeg, cloves and allspice. Cook all together until it will cut when cold. This is fine to serve with cold or roast meat.

**Apple Delight**—Put two cups of chopped apple in a double boiler with two cups of brown sugar, juice and

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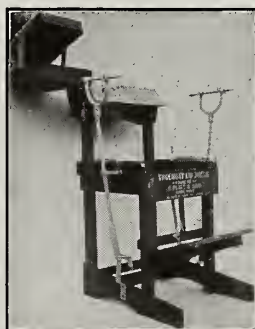


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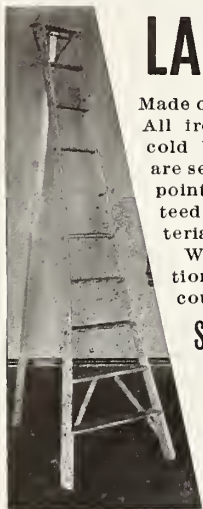
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Made of select vertical grain fir. All iron work made of strong cold bent steel. The Ladders are securely braced in all vital points and absolutely guaranteed against all defects of material and workmanship.

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—E. W. Brackett, North Yakima.

Space here forbids much explanation, but if you will write us we will gladly explain the difference between the famous VROOMAN PURE STRAIN FRANQUETTE WALNUT and the common sort. You can afford and should have at least a few of these most desirable trees in your orchard. Write us now. We also have, you understand, the largest assortment and stock of all kinds of fruits, berries, vines, roses, etc., in the West. ORENCO trees are planted from coast to coast, because they are known to be always—dependable—first class.

### Oregon Nursery Company

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Dependable Salesmen Wanted

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# White River Flour

MAKES

## Whiter, Lighter Bread

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chopped rind of one orange, one cup of chopped raisins. Cook for one hour, adding one cup of chopped walnuts five minutes before removing from the stove. Pack in jelly glasses and cover with paraffine.

**Apple, Celery and Nut Salad**—Mix one cup of celery with three cups of apples cut into small pieces, with one cup of walnut meats cut fine. Dress with a boiled salad dressing and serve in apple cups or on lettuce leaves.

**Apple and Nut Salad**—Pare and core two large sour apples, cut in very small pieces and mix with one cup of walnut meats and mayonnaise dressing. Just before serving mix with one cup of whipped cream and serve on lettuce leaves.

**Clarified Apples**—Pare, core and cut into thick slices twelve tart apples; drop these, a few at a time, into a thick syrup made of four cups of sugar and two cups of water, cook until clear, remove and drain. Add the rind and juice of one lemon to the syrup and boil until thick and pour over the apples.

**Crabapple Pickles**—Choose medium sized Transcendant crabapples, wash, and prick the skins; steam until tender, then bring to boiling point in sweet spiced vinegar, such as is used for spiced apple pickles. Seal in glass jars.

**Preserved Crabapples**—Cut out the blossom but leave the stem on highly colored Hyslop crabapples. Make a syrup in the proportion of one cup of water to two cups of sugar. Cook a few apples at a time until tender, remove and place in glass jar. When all the apples are cooked, boil the syrup until thick, pour over apples and seal.

**Coddled Apples**—Take tart, ripe red apples of uniform size, remove the cores and place in an aluminum basin with a little water; spread thickly with sugar, simmer until tender, pour the syrup over the apples and serve cold.

**Apple and Quince Preserves**—Pare, core and quarter sweet apples and a third as many quinces. Boil the quinces in just enough water to cover, remove, and add to the water as much sugar as there are quinces and apples. Let boil, skim, and drop the quinces and apples in. Let boil fifteen minutes. Pack the quinces and apples in glass jars or glasses, boil the syrup until it jellies and pour over the fruit.

**Apple Vinegar**—Pure, clean apple cider stored in vinegar barrel for a year or longer makes the best vinegar.

**Wagener Apple Cider**—The Wagener and Snow apple cider in this collection were made by using only clean, sound fruit, run through the cider press, strained several times, allowed to settle, the cider syphoned off and bottled. A delicious cider is made by combining these two.

**Apple Syrup**—Slice and cook one dozen tart apples and one box of raspberries or one cup of raspberry juice in water enough to cover. Strain as for jelly, boil ten minutes, then add of sugar two-thirds the quantity of juice and boil five minutes longer. This is fine for pudding sauce or used as syrup.

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Better size, color and flavor assured.  
Acts quickly upon growing fruit. Positively removes all cherry gumosis. Will apply for 5 cents for four-year-olds, others 10 cents.

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in the first cost alone on the best, most modern,  
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—you pay just one small profit above  
actual cost of materials and labor. Why pay  
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Backed by \$25,000 bond. Write for new catalog and  
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partly or entirely without cost in the end. Write today.

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We have also reservations in a new Cold Storage House for a number of cars of Box Apples—on which a liberal cash advance will be made.

*"The Pioneer Box Apple House"* **F. BORDER'S SON CO.**

**Dried Apples**—Select sound, well matured fruit, pare, core and cut in rings. String and dry near the fire. If the winter apples are not keeping well it is a good plan to dry or can them to prevent waste. There is a time in the spring before fresh fruit comes when these apples will prove welcome. Although there is a prejudice against dried apples, they can be made very palatable with a little care.

**Candied Yellow Newtowns—Candied Jonathans**—These two varieties were found to hold their shape and retain a fine flavor when candied. Pare, core and cut into eighths medium sized apples; drop a few at a time into a rich syrup composed of two cups of sugar to one-half cup of water, let simmer gently until clear, remove and place on a plate to drain. Dry for a few hours then roll in granulated sugar; let stand over night, then roll again. Repeat this process until they will not absorb any more sugar, then pack in tin boxes lined with oiled paper. These are delicious as a confection or to use in fruit cake or puddings in place of other fruit.

**Wagener Apple Jelly**—Slice apples, without removing cores, put into preserving kettle with water enough to cover. Cook gently until soft, drain and strain, then boil for ten minutes and add an equal amount of sugar. Stir till the sugar dissolves and boil quickly until it will form a jelly on a spoon or cold dish. Pour into sterilized glasses and cover with paraffine.

**Jelly Made With Wagener Apple Skins**—When making apple butter, marmalade, etc., there will be a great many skins left. To avoid waste these can be utilized for jelly. Cover them with water in a preserving kettle and cook rapidly for half an hour. Let drain over night and proceed as for apple jelly.

**Yellow Newtown Apple Jelly**—Made the same as Wagener apple jelly. This gives a bright yellow jelly that is very clear and pretty.

**Crabapple Jelly**—Wash and slice crabapples. Put into a preserving kettle with just barely enough water to come to the top of the fruit. Cook rapidly for half an hour. Drain without pressure. Cook again for ten minutes, then add an equal amount of sugar and



## THE IMPROVED HOOD RIVER BOX NAILING PRESS

Is the Best Device of its kind for the money on the market

The fact that Hood River growers by the hundreds use them, is our best testimonial. And those who have had experience with the press are satisfied; for by the elimination of box bruises it has aided in making the Hood River apple famous.

If you are in the market for a Nailing Press, it is to your advantage to investigate the HOOD RIVER PRESS and get our prices.

**W. G. SNOW**  
Hood River, Oregon

## The Hood River Apple Sizer

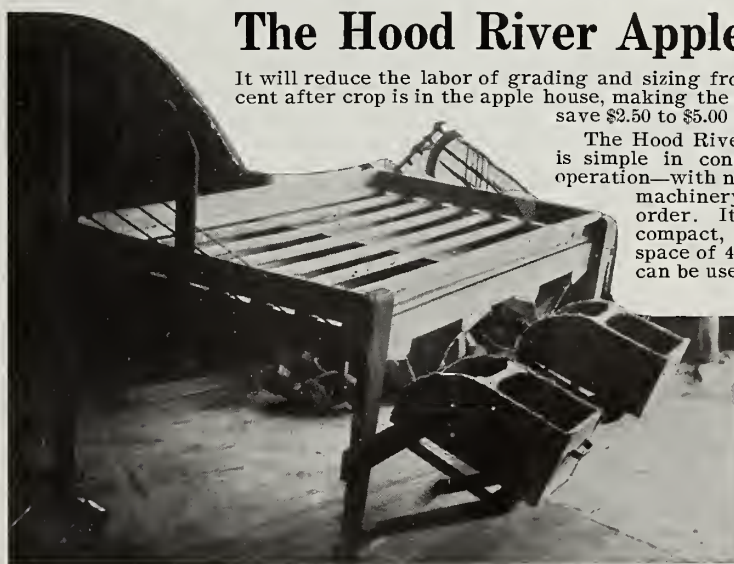
Apple buyers and consumers are demanding standardization and uniformity in the grading and sizing of apples. This work is usually done by hand, costing from five to fifteen cents per box. The apple industry demands economy in every phase of the business. Consequently an apple grower in Hood River has invented

### The Hood River Apple Sizer

It will reduce the labor of grading and sizing from 20 to 30 per cent after crop is in the apple house, making the little machine save \$2.50 to \$5.00 per day.

The Hood River Apple Sizer is simple in construction and operation—with no complicated machinery to get out of order. It is small and compact, occupying a space of 4½x6 feet so it can be used in any pack-

ing house, no matter how small. With extra help it has a capacity of 500 boxes per day and the cost of grading and sizing can be done for 3c per box. The price is so low that every grower, no matter how small, cannot afford to be without it. ANY GROWER WITH A 1,000 BOX CROP CAN SAVE THE COST OF THE MACHINE IN ONE YEAR.



matter how small, cannot afford to be without it. ANY GROWER WITH A 1,000 BOX CROP CAN SAVE THE COST OF THE MACHINE IN ONE YEAR.

FOR PARTICULARS AND PRICES WRITE TO

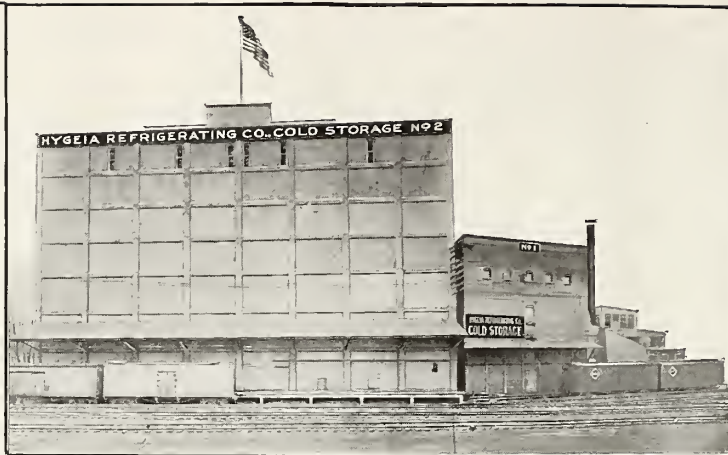
**J. F. VOLSTORFF, Hood River, Oregon**



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ELMIRA, NEW YORK

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35 CARS PER DAY  
300,000 BOXES



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## Boxed Apples

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Four Trunk Line Railroads

Special Outgoing Storage  
in Transit Rates

Storage rates, etc., quoted  
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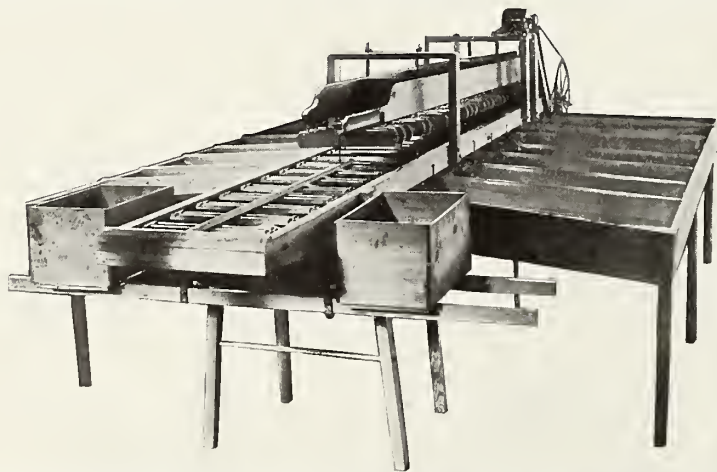
When wishing to use the Cleveland market, or desiring reliable information concerning same, write or wire us. We are among the largest receivers here.

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Absolute responsibility, reliable and prompt service. No house in any market excels us in making prompt remittances when goods are sold. Liberal and consistent advances made on consignments. Ample cold and dry storage facilities.

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Is the most simple and economical sizer on the market today. Experience has demonstrated that sizing to eight divisions is more practical than a greater or less number of divisions and enables packers to pack the maximum quantity per day, thereby reducing the cost.

The sizing is done **ABSOLUTELY WITHOUT BRUISING.**

The sizer is strongly and simply constructed, with no complicated machinery to get out of order, and will last a lifetime.

The machines will make two grades at the same time and divide each into eight sizes.

The construction is so simple that the machine can be operated with  $\frac{1}{30}$ -horsepower motor—either electricity, gasoline engine, or by hand.

For particulars address

## The Pride of Oregon Apple Sizer

J. R. NUNAMAKER & CO.

HOOD RIVER, OREGON

boil to the desired consistency. Pour into jelly glasses. Crabapple juice added to quince, plum or peach juice makes a pleasing flavor. The crabapple contains a large amount of pectose and and therefore makes a firm jelly more readily than almost any other fruit. By sorting the apples according to color a bright red or clear yellow jelly may be made as desired.

**Hyslop Crabapple Jelly**—Made the same as crabapple jelly, this gives a dark red jelly of delightful flavor.

**Apple and Quince Jelly**—Take equal parts tart apples and quinces, or if the quinces are scarce use the parings and cores of quinces, reserving the quinces for preserves. Proceed the same as for apple jelly.

**Apple and Mint Jelly**—Wash and slice either crabapples or sour apples and cover with water. Boil until soft, then drain and cook ten minutes; measure juice, add an equal amount of warm sugar; boil rapidly until a little jellies on a cold spoon; then add several sprigs of mint and enough green vegetable coloring matter to make a delicate green. Strain into jelly glasses and when cold cover with paraffine. This is excellent to serve with lamb.

**Spiced Apple Jelly**—Wash and slice sour apples, put into preserving kettle with a little vinegar and a spice bag left from making sweet pickles or a few whole cloves and sticks of cinnamon. Let boil until the apples are soft, then strain; take equal parts sugar and juice and boil until it jells. This is fine to serve with meat.

**Lemon Apple Jelly**—To one quart of apple juice add the juice of one lemon and one quart of sugar; boil until it jells, then strain into jelly glasses. If the supply of jelly runs low toward spring, this is one way to use the apples that are lacking in flavor. Orange juice may be added in the same way.

**Apple and Raspberry Jelly**—Take equal parts apple and raspberry juice; let boil twenty minutes and add an equal amount of sugar. Let boil briskly until it jellies on a spoon. Blackberry, choke cherry, grape and rhubarb can be used in the same manner. Apple makes the best and most inexpensive foundation for all kinds of jelly.



**Jonathan Sauce With Skins**—Extract the color from Jonathan peelings by boiling in a little water. To each cup of this red juice add a cup of sugar. Quarter and core bright apples, cook in this syrup until tender and serve cold.

**Baked Rome Beauties**—The Rome Beauty is a good apple to bake, as it retains its shape. Wash and core. Fill the space, and cover, with sugar. Put in an aluminum baking dish with a little water and bake until tender.

**Baked Wageners, Spiced**—Pare, core and quarter medium sized Wagener apples. Mix a teaspoonful of cinnamon with a cup of sugar. Put a layer of apples in the dish and cover with the sugar, then apples, then more sugar; lastly a little water. Bake until tender.

**Apples en Casserole**—Pare, core and slice one quart of tart apples and put in a baking dish alternately with one cup of sugar and one-quarter cup of cold water. Cover and bake in a moderate oven. Serve either hot or cold with cream.

**Plain Apple Pie**—Sift one cup of flour and one-fourth teaspoon of salt into a bowl, rub into it four tablespoonfuls of shortening until the whole is reduced to a fine powder; add cold water slowly to make a stiff dough. Place on a slightly floured board and roll thin; spread with another tablespoonful of shortening and fold, then roll again. Cover tin loosely with this paste, brush over with white of egg, fill with thin slices of good cooking apples, sprinkle with one cup of sugar with which has been mixed a tablespoon of flour. Scatter over a few small lumps of butter, moisten edges with unbeaten white of egg or cold water, cover with crust, pinch the edges together with fingers or tines of fork, prick holes in center of crust, bake in moderate oven for half an hour.

**Mince Pie**—Make crust the same as for apple pie and fill with mince meat made as directed in recipe for mince meat given elsewhere in this article.

**Apple Custard Pie**—Put three cups of apple sauce through a sieve, mix with beaten yolks of four eggs and whites of two, and one and a half cups of sugar. Put in a tin with bottom crust only. Bake in rather quick oven. When nearly done, cover with meringue made with whites of two eggs, two table-spoons of sugar and a few drops lemon extract, and let brown slightly.

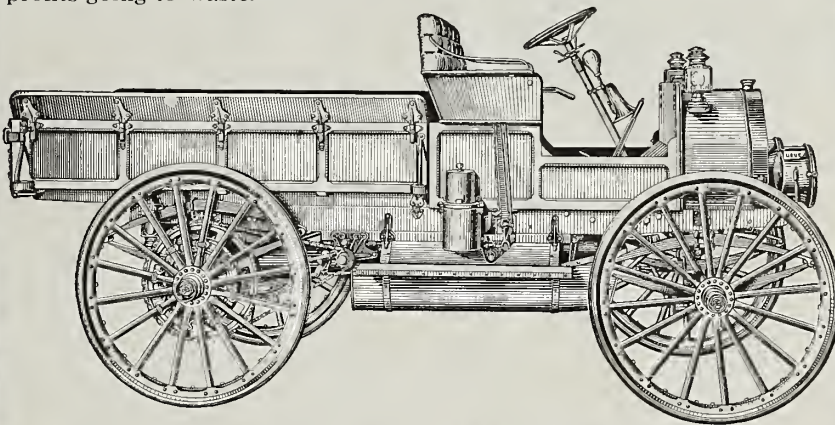
**Chopped Apple Pie, Spiced**—Chop or run through a meat grinder enough tart apples to fill a pie tin. Mix with a cup and a half of sugar, one teaspoonful of cinnamon and one heaping teaspoonful of flour. Line pie tin with crust, fill with the apples and cover with narrow strips of crust. Bake in moderate oven.

**Apple Charlotte**—Soak one-quarter of a box of gelatine in two tablespoons of cold water. Add this to one pint of hot apple juice sweetened to taste. When it begins to harden, beat in one pint of whipped cream. Place a layer of apple conserve in bottom of mould, pour in the mixture and set away to cool.

**Candied Apple Jello**—Make lemon jello according to directions and when

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Many an up-to-date successful fruit grower will tell you that we are justified in saying this: Wherever fruit growing is a business, and produce is still handled by horse and wagon, there are respectable fruit profits going to waste.



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Buy an International and be ready for your daily hauling problems and for emergency trips. The International is simple, sturdy, easy to operate. It is always ready to go, rain or shine, day or night, in all seasons on all roads. It does the work of three or four horse-and-wagon rigs, goes three or four times as fast as one. When it is not in use it puts you to no expense, and when you want it the International will be ready for you.

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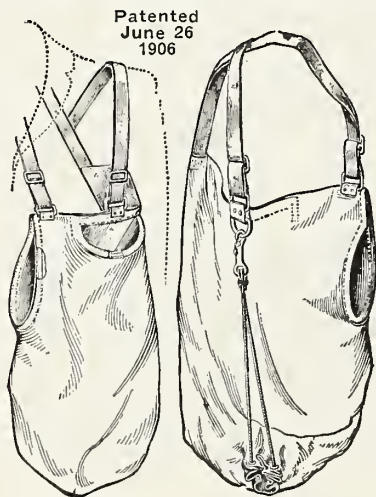
**Ready Built House Company**  
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You want to save time, temper, trouble and trees. You want to raise fruit that brings the highest prices. You want to know all about our sprayer before you buy. There is more you ought to know. Do You Want To Know The Price?

Write for Catalogue #6  
**REIERSON MACHINERY CO.**  
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FRONT

BACK

## IDEAL FRUIT PICKING BAG

Made of heavy weight duck and so arranged as to equalize the load on both shoulders.

The openings are arranged so both hands can be used in picking, and the drawstring is arranged so the fruit can be let out at the bottom in emptying the bag.

The bag can be let down to the bottom of the box before opening the drawstring, thus not bruising the fruit.

This is the best and handiest arrangement for picking fruit that has ever been offered. A trial will convince even the most skeptical.

SAMPLE, POSTPAID, \$1.00

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nearly cold add small pieces of candied apple. Serve with whipped cream.

**Brown Betty**—Pare, core and chop six apples. Place a layer of bread crumbs in a well buttered baking dish, then a layer of apples, sprinkle with brown sugar and cinnamon; repeat till the dish is nearly full. Pour on milk until it comes nearly to the top of the apples, add a few pieces of butter and bake about three-quarters of an hour. Serve with a hard sauce.

**Apple Dumpling**—Cut rich pie crust into four-inch squares. In the center heap half a cup of sliced apple, sprinkle with sugar and cinnamon. Moisten the edges with the white of egg, press the edges together. Bake about forty minutes. When nearly done brush with white of egg and sprinkle with sugar. Serve with pudding sauce or sweetened cream.

**Apple Tarts**—Fill tarts with apple custard and bake. When cold cover with a spoonful of whipped cream, put a spoonful of red apple jelly in center and serve.

**Apple Cake**—One cup sugar, one-half cup shortening, two eggs, one-half cup sour milk, one-half cup molasses, one cup thick, sweetened apple sauce, one teaspoon cinnamon, one level teaspoon soda, three cups flour, six level teaspoons baking powder. Cream the sugar and shortening, add egg yolks and beat, then add the sour milk, molasses and apple sauce, then soda dissolved in a little water. Sift the baking powder and cinnamon with the flour and add to the mixture; beat well, adding the well beaten whites last. Bake in dripping pan, loaves or in gem tins.

**Apple Cobbler**—Pare and slice sufficient tart apples to fill a pudding dish three-quarters full, sprinkle generously with sugar and a little spice if desired. Add a little water. Cover with a rich baking powder biscuit crust without rolling out. Leave a hole in the top for the steam to escape. Bake half an hour. Serve with rich pudding sauce.

## Foreign Apple Markets

Last year arrangements were made by marketing organizations in the Northwest and permanent offices established in England to enable the shipping concerns of the Northwest to keep in closer touch with European consuming points. These representatives will undoubtedly be instrumental in increasing the exports of apples to such ports as London, Liverpool and Manchester in England, Glasgow in Scotland, Hamburg and Bremen in Germany, Paris in France, Christiana and Bergen in Norway, Stockholm, Gothenburg and Malmo in Sweden, Copenhagen in Denmark, Rotterdam in Holland, Antwerp in Belgium and Helsingfors in Finland. From these large cities practically all of the smaller cities in these different countries can be supplied, and it is to be hoped the establishment of offices in England will be instrumental in effecting an increase in European consumption of apples.

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(CLARK)

## Disk Tools for Intensive Tillage

There isn't a farmer in America but who should own at least one Cutaway (Clark) disk harrow or plow.

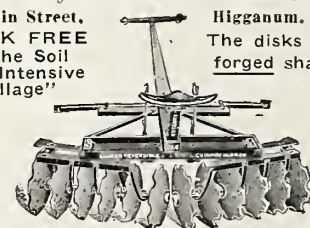
Over 100 Styles and Sizes

Ask us about the DOUBLE ACTION ENGINE HARROW, the DOUBLE ACTION—REGULAR, the DOUBLE ACTION—EXTENSION HEAD—(for orchard work), the SINGLE ACTION—REGULAR, the SINGLE ACTION—EXTENSION HEAD—(for orchard work), the BUSH AND BOG PLOW, the CORN AND COTTON HARROW, the RIGHT LAP PLOW, the CALIFORNIA ORCHARD PLOW, or the one-horse harrows and cultivators, whichever it may be that you need. Ask your dealer to show you a CUTAWAY (CLARK) machine. Do not accept a substitute. Write us for catalog.

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The disks are  
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Take advantage of storage in transit rate and the better market later. Write us for our dry and cold storage rate and information.

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Spokane, Washington

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## "Mustonia"

Powerful Antiseptic and Germicide Solution

For Blight, Codling Moth, Thrip, Green and Black Fly, Mildew, etc.

Spray with Mustonia three or four times a year and your trees will be healthy and vigorous; their producing efficiency will be increased to the maximum. Roses, flowers, plants respond quickly. Give Mustonia the hardest trial you can; absolutely warranted where simple instructions are followed. Write today for literature, instructions for using and helpful suggestions on tree planting, root trimming, etc.

## E. Leech, F.R.H.S.

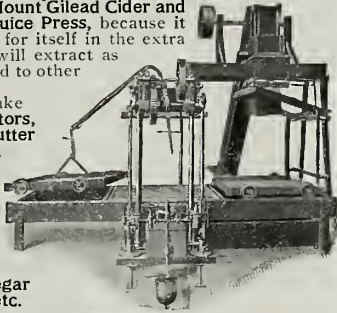
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Our Specialties are

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With the fruit grower is, how can he derive a revenue from his overripe and unsalable fruits?

It can be done. It is being done. How? By the use of the new and up-to-date process of

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AND JUST ONE MAN ON THE JOB WITH A  
KING OF THE WOODS  
DRAG SAW

Pulls itself up the steepest hill  
and over the roughest ground  
One man writes he sawed  
84 ricks in 10 hours.

Another sawed 40 cords  
in 9 hrs.

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THERE IS MORE YOU  
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Write for Testimonials  
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Reiterson Machinery Co.  
Manufacturers, PORTLAND, OREGON.

## Fairs, Apple Shows and Conventions

The Fifty-third Annual Oregon State Fair will be held at the fair grounds at Salem, September 28th to October 14th. The premium list, which has already been issued, is larger than ever before, with plenty of cash prizes for about everything a farmer produces. In fact the premium offers are so liberal that not only first and second cash prizes will be given but in many instances there are third, fourth and fifth prizes. This gives everyone a chance to win something. The Salem fair is rather a novel one on account of the beautiful grove in which the fair grounds are situated. The grounds provide ample and comfortable accommodations. Reasonable board can be secured in boarding houses and private families. In fact the Oregon State Annual Fair is a sort of picnic with the farmers, because everyone has a delightful time and the expense is small. Every farmer and fruitgrower in the State of Oregon should attend this fair.

\* \* \*

The International Irrigation Congress will hold the Twenty-first International Session at Calgary, Alberta, October 5th to 9th. These meetings are always very interesting and instructive to a man who wants to learn something about the value of irrigation to America. Hundreds of thousands of acres of barren land and whole sections of countries are being made rich through irrigation.

\* \* \*

California will hold the Fifth Annual Apple Show from October 1st to 11th, 1914, at Market and Eighth Streets, San Francisco, instead of at Watsonville. This is a splendid move because a much larger attendance can be secured, and the larger the attendance the better the apple show will be to the apple growers. Apple shows are certainly big factors in benefiting the fruit industry, and when held in large cities are instrumental in helping to increase a greater demand and larger consumption of apples. Every Californian should attend the California Apple Show. Those who live outside the state should arrange their trips to California, if possible, so as to attend the show. The feature exhibits are wonderfully attractive to everyone, whether interested in the fruit industry or not.

\* \* \*

Washington State Fair.—Every year the State of Washington holds one of the most attractive fairs that is held anywhere in the Northwest. It will be held at North Yakima, in the heart of the wonderful Yakima Valley, the largest fruit-growing section of the Northwest, from September 21 to 27, 1914. Each year the exhibits of fruit are extremely attractive and the competition for valuable prizes is very keen. In addition to the fruit display, there will be a general display of all farm products. North Yakima is a

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**"K" Hand Power**  
**STUMP PULLER**



(Hand machine sketched from photo.)  
"K" is strongest Stump Puller known. Works like rowing boat. Krupp steel frame; hardened forged steel wearing part weight only 171 lbs. Weatherproof English cable (no chains to break). Cash terms. Year guarantee.  
If your stump can be pulled with inc steel cable "K" will do it. Man with "K" can pull 48 tons. U. S. Government uses "K" in Alaska. Good for all sorts of moving and pulling. Get special advertisement low-price offer.  
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TELLS HOW TO DO IT EASILY AT SMALL EXPENSE  
"KOTE-IT" a rubber-like paint for roofs, tin, paper or shingle, new or old, iron work, silos, tanks, posts, implements, etc.  
APPLIED WITH A BRUSH  
50¢ A GALLON DELIVERED IN QUANTITIES  
Guaranteed for 5 years  
**A.W. SMITH CHEMICAL CO.**  
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**CAXLE & S**  
**GREASE**

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SMALL CAN

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**RACINE**

prevent damage to eggs, garden truck, fruits or live stock on road to market. Make any wagon a spring wagon. Soon save cost—produce brings bigger prices—wagon lasts longer—horses benefited. Thousands in use. "My wagon rides like auto" says one user.

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Same principle—same care—same high-quality steel in Harvey Bolster Springs as in finest automobile springs. In resiliency, durability and appearance they cannot possibly be excelled. The Standard Springs of America since 1889. Get a pair at your dealers. If not at dealer's write us. Insist on Harvey's. 40 sizes—fit any wagon—sustain any load to 10,000 lbs. Catalog and list of proof free.  
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Well, it looks that way

How long will a Blizzard Ensilage Cutter last? Nobody knows. Blizzards haven't been on the market long enough to wear out. Most of the Blizzards—the *original* blower cutters—built 12, 13, 14 years ago, are still going. James S. Wilson & Bro. of Paris, Ky., have a customer who has used a Blizzard fourteen years—without one penny repair cost. The

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is *built to last*. It is very simple. Little to get out of order or to cause repair cost. The parts that wear can be replaced at small cost. No other cutter so durable.

### Big results with small power

A farmer's regular farm engine will run the Blizzard, handle the corn fast as the corn can be fed to the machine, and

hustle it to the top of any silo, no matter what its height is. Makes even-cut silage. Self-feed table, takes the place of one man.



**Come in, get a catalog and let's talk over the Blizzard**

Buying an ensilage cutter is a mighty important thing. We've got some things to tell you about cutters that maybe you don't know.

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*Mention this paper.*

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**1.—We Specialize in Apples**

**2.—All Consignments Receive our Personal Attention**

**3.—The Fruit is Sold by Private Treaty on its Merits**

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WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

beautiful city, with splendid hotel accommodations and conveniences for all visitors. The people of North Yakima are known for their hospitality, therefore we feel justified in assuring everybody who attends this fair not only an interesting and instructive time but a very pleasant visit as well.

The Sixth National Apple Show will be held at Spokane from November 16 to 21, 1914. Spokane deserves credit for originating the first exclusive apple show ever held in the Northwest six years ago. The first show was a phenomenal success and the interest has been so great annually and the attendance so large, with so much of value to apple growers, that the Spokane business people, at considerable expense to themselves, have each year decided to continue the show which has now become a permanent annual event. Through a conference called by the National Apple Show of Spokane the North Pacific Fruit Distributors was organized. This year the apple show will endeavor to do something permanent for the by-product business in connection with the fruit industry. The committee appointed last year has accomplished a great deal in this line and are now prepared to present a general plan which they believe will meet with approval. This plan will assist the growers in taking care of the wastes, converting them into by-products and disposing of them. In addition to the wonderful exhibit which will be made, a splendid conference program is being arranged to discuss all of the important subjects in connection with the orchard industry. The Sixth National Apple Show of Spokane is one which deserves the earnest support of every fruitgrower in the Northwest. Every man who possibly can should make an exhibit and no grower in the Northwest should fail to attend.

The Manufacturers' and Land Products Show will be held in Portland, Oregon, from October 26th to November 14th, at the armory. Many fruitgrowers and farmers will remember with much interest and pleasure the very successful Land Products Show held in Portland two years ago, which, notwithstanding the fact that the building was very unattractive, was a great success. This year the show will be held in the armory, which is a magnificent and spacious building and one especially suited for just such an exhibition as the Manufacturers' and Land Products Show intend to give. The show will comprise exhibits from all of the principal manufacturers of the Northwest and all kinds of products from the land. These shows are wonderfully interesting and extremely instructive, and in addition to this much pleasure is had by the visitor from the opportunity for personal contact with visitors from all parts of the country. The show will be held under the joint management of the Manufacturers' Association of Oregon and the Pacific



Northwest Land Products Show Association. A very able executive committee has been selected, Mr. David M. Dunne being president, who was formerly collector of reports, a man with splendid ability for just such a position, widely known and liked by all of his acquaintances. In addition to Mr. Dunne, the committee includes A. J. Kingsley, F. L. Thompson, John S. Beall and A. P. Bateham, with Louis W. Buckley as general manager. The very large list of directors includes prominent business men of the City of Portland. Every effort is being made to make this show a success and it should receive the support of the entire Northwest.

#### Packing Apples in Small Boxes for the English Trade

The Northwestern Fruit Exchange, through its London office, has been developing the possibilities and demand for Northwestern apples packed in small boxes. The best trade in London was canvassed with regard to the prospects for such a package in that market, but the general opinion is that such an experiment would not prove successful. The reasons given are: (1) That portion of the fruit trade in London which pays the highest prices is that which caters to the requirements of the West End clubs, hotels, etc. The preparation of this fruit is quite a special business and entails the use of a variety of packages of different shapes and sizes, according to the requirements of the clientele of any particular dealer. These fancy packages are made up with all kinds of fruit, the selection and packing taking place in the warehouse of the dealer. These dealers buy their apples and pears from us in the usual export cases and are prepared to pay the highest price for the best article. It is extremely unlikely that a small box such as has been suggested would be of any advantage to them over the bushel box, and if the latter worked out cheaper by comparison there would be very little demand for the small boxes. (2) Should the high-class trade be dull at any time, as it is on occasions, on account of the absence of the wealthy classes from town, we should be forced onto the ordinary trade and be compelled to accept prices which would not pay for the extra cost of packing. Although the above opinion is not a favorable one for the introduction of a small box, should it be decided to try the market with a few and thus gain practical experience a single-layer box, containing twelve apples, or possibly twenty-four, is suggested.

#### The European Fruit Crop

Reports from England received in July indicate that the fruit crop in that country would be about one-half a crop, owing to severe frosts which occurred during the month of May. France is a heavy producer of cherries, and during the year 1914 shipped more cherries than in any previous year for

## Yakima County Horticultural Union

E. E. SAMSON, Manager  
North Yakima, Washington

### INDEPENDENT SHIPPERS

OF

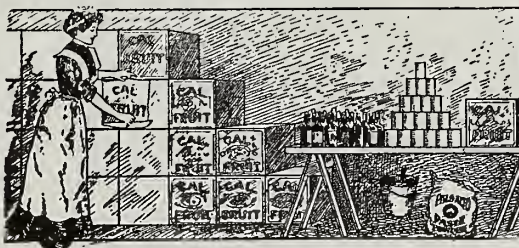
Straight and Mixed Cars Yakima Fruits

CONSISTING OF

Peaches, Pears, Apples,  
Plums and Prunes

WRITE OR WIRE US TODAY

### Paste for Labeling—"Palo Alto" Paste Powder



added to cold water, instantly makes a beautiful, smooth, white paste. Ready for immediate use at a cost of ten cents a gallon. No labor. No muss. No spoiled paste.

Paste Specialists

Robinson Chemical Works  
349-351 Eighth Street  
San Francisco, California

# GO EAST NOW

VIA

TO

Denver .....	\$ 55.00
Omaha .....	60.00
Kansas City .....	60.00
Chicago .....	72.50
New York City .....	108.50

Equally reduced fares to other Eastern cities. Rates to any point furnished on application.

Oregon-Washington Railroad & Navigation Co.

O. S. L.—U. P.

## LOW ROUND TRIP FARES

Tickets on sale every day to September 30. Final return limit, October 31, 1914. Liberal stop-over privileges.

Superior service, unexcelled dining and sleeping car accommodations, through trains, direct routes, automatic block signals, every requisite for safety and comfort.

Visit Yellowstone National Park on your way East. Through sleeping car service to and from Southern entrance to the park.

For full information, fares, routes, train schedules, etc., call upon any agent of the

# O-W. R. & N.







### Man cannot make a waterproofer that equals asphalt made by Nature

We have tested all waterproofing materials during our thirty-five years' experience in the use of natural asphalt, and find that no man-made substitutes are permanent—they dry-out, crack and leak.

The one absolute and lasting waterproofer is *natural asphalt*; and we use Trinidad Lake asphalt to make

# Genasco

THE TRINIDAD-LAKE-ASPHALT

## Ready Roofing

It is full of life; it gives lasting resistance to sun, rain, snow, wind, heat, cold, and fire. It is roofing of remarkable endurance and economy.

Get Genasco of your dealer—smooth or mineral surface; several weights. The KANT-LEAK KLEET method is the improved way to apply roofing—does away with cement and prevents nail-leaks. Write us for samples and the Good Roof Guide Book, free.

**The Barber Asphalt Paving Company**

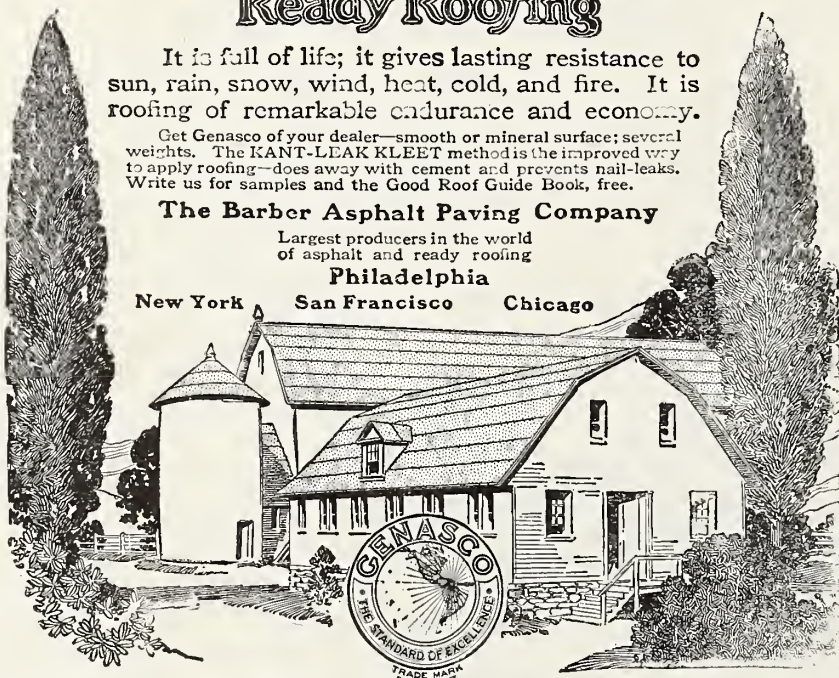
Largest producers in the world  
of asphalt and ready roofing

**Philadelphia**

**New York**

**San Francisco**

**Chicago**





**RHODES DOUBLE CUT  
PRUNING SHEAR**

Pat'd June 2, 1903.

**RHODES MFG. CO.,**  
520 S. DIVISION AVE., GRAND RAPIDS, MICH.

**THE only**  
pruner  
made that cuts  
from both sides of  
the limb and does not  
bruise the bark. Made in  
all styles and sizes. We  
pay Express charges  
on all orders.

Write for  
circular and  
prices.

ten years. France also grows some very fine pears and peaches. Many small orchardists make a specialty of producing fine quality fruit in a limited way. The fruit trees are frequently trained along the side of a building, perfectly cared for and thinned so that each fruit becomes very large. Some French cantaloupe growers suspend the melons from the ground and in this way produce a perfect melon over the entire surface. These high-class individual fruits are sold by many fruiterers at high figures.

#### "Better Fruit" Directory

The original plan of "Better Fruit" in reference to advertising was to make the advertising columns, as far possible, a directory for the fruitgrower for everything which he uses in his business, and as many things as possible which he consumes. We have stuck to this principle consistently, and in every edition of "Better Fruit," in advance of the season and during the season for which the articles are required for different features in the orchard business, we aim to secure, and generally have secured, advertising from manufacturers advertising the very best articles for the fruitgrowers. We also aim to acquaint the fruitgrower with the principal dealers engaged in the fruit industry throughout the United States, and to some extent we have secured advertising from first-class fruit dealers. It is with considerable pleasure we refer our readers to the advertising columns of "Better Fruit" as being a directory for them in their line of work. While it may seem like bragging, we think "Better Fruit" affords one of the best directories for the fruitgrower that has ever been published.

The seventh edition of Professor E. J. Wickson's book entitled "California Fruits" has just been placed on the market. It is one of the best publications in existence in reference to the production of fruit; a very valuable book and one which every fruit grower should possess. Professor Wickson has for many years been director of the experiment station at the University of California and is a man of national reputation. This book is published by the Pacific Rural Press, San Francisco.

Mr. Edison C. Merritt, manager of the Sebastapol Apple Growers' Union, Sebastapol, California, called at "Better Fruit" office recently. He stated that his association would ship about 500 cars of apples this year.

Almost the whole world knows of Hood River as a place that produces the best fruits, and all of Hood River Valley should know, and could know, that there is one place in Hood River, under the firm name of R. B. Bragg & Co., where the people can depend on getting most reliable dry goods, clothing, shoes and groceries at the most reasonable prices that are possible. Try it.

[Advertisement]

PORTLAND, OREGON

# PORTLAND HOTEL

The hotel which made Portland, Oregon, famous  
Most Desirably Located. In the Center of Shopping and Theatre District  
Covers a City Block

**Broadway, Sixth, Morrison and Yamhill Streets**

EUROPEAN PLAN—\$1.00 per day and upward

Write for Portland Hotel Booklet

G. J. Kaufmann, Manager



# The Four-Cup Price Fruit Sizer

Made in 4 sizes, with capacities ranging from 350 to 2,000 boxes per day, with price to meet every need.



**OUR MOTTO**—To reduce the cost of putting fruit in the box, so that even a child could do the work and obtain the perfect pack.

This machine will save you from three to five cents on every box you pack. Sizes your apples into the 20 Northwest standard packs. We furnish a system of packing cards that will enable you, with our machine, to make a packer out of an inexperienced person in one hour.

We size the fruit by weight, which is the only scientific and correct way. It makes no difference to this machine if the fruit is flat, oblong, round or square. It is extremely simple in construction and design, nothing to get out of order, and no mechanic necessary on the job to look after it. Our grading table is so arranged that one or six men can be used; after the fruit is emptied on the table, the sorter never picks it up again; he simply judges the color and grade, and it passes down to the sizer and is picked up automatically and delivered to the packing bins. One man, on our grading table, can do the work of three to five in the old way, and do it better.

One grower said his crop run 65% one size; from a box of his own pack, 138 size, we got 7 sizes ranging from 96 to 163; after the demonstration his expression was: "I see some light." No other machine on the market can duplicate the work it does. Read the following letters, which speak louder than pages of advertising can:

Price Fruit Sizer Co., North Yakima, Wash.

Dear Sir: Since installing the four single fruit sizing machines purchased of you we have had ample time to give them a thorough trial. We have run 16,000 boxes of peaches, early varieties, and the work is perfect, absolutely no harm to the fruit. We have used these sizing machines on early apples to our entire satisfaction. As to capacity, a single machine will size 1250 boxes of Elberta peaches in ten hours. We find by using these sizers we have reduced the number of employees on the floor of packing house and have also reduced the price paid packers approximately 33 1/3%, and the packers are making as much money as they made formerly.

In the future our packing houses will be equipped with Price Fruit Sizing Machines, as they fill all the requirements. Yours respectfully, Thompson Fruit Co.

Price Fruit Sizer Co., North Yakima, Wash.

Gentlemen: From the time we first saw your machine in operation we were sure you had solved the problem of sizing deciduous fruit, although the principal, so far as we knew, was entirely original. After installing one in our warehouse we are thoroughly convinced that your machine will revolutionize the grading and packing of apples. Yours truly, Pacific Fruit & Produce Company.

## Price Fruit Sizer Company

Designers and Manufacturers of Throwing Machines for Sizing and Sorting Apples, other Fruits, Vegetables and Nuts.

Works and General Sales Office, North Yakima, Washington, P.O. Box 934, Office No. 1 North Second Street

W. G. PRICE, President.

W. K. PRICE, Manager Works.

J. W. LAVIGNE, Sales Manager.



THE WORLD

OUR ORCHARD

**STEINHARDT & KELLY**

**101 PARK PLACE  
NEW YORK**

Unquestionably the most  
important factors in the  
Fruit Industry of  
the United  
States



OUR MARKET

THE WORLD